THE IRON AGE

New York, February 11, 1926

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Foundry Workers of Tomorrow

Large Numbers of Boy Scouts Study Foundry Practice—Surprising Interest in Vocational Training in General

FOR some years a movement has been on foot among those guiding the destinies of the Boy Scouts of America to see that they are given some education or training in, or at least a proper acquaintance with, certain important vocations. Among such is included foundry work. Last year over 100 scouts won distinction in this subject alone.

To put the work in concrete form the executives of the organization have published a pamphlet on foundry work. So many requests for this have been received from scouts and their leaders that a merit badge has been issued for boys who wish to specialize in this subject. It is characterized also as of considerable value to those in the trade and as helpful to foundry owners, who may wish to distribute educational material of the sort to their regular employees, to boys in the community schools and to scout troops.

Simplicity in language has been aimed at. The pamphlet does not attempt to treat the subject exhaustively, but rather to stimulate the boy's natural interest and define standard terms and processes so that he will wish to do actual work for himself. A brief history of iron founding in the United States and a glossary of terms are included. There are several valuable projects outlined for a scout to work out himself that are of special interest. Various castings, molds and tools are considered.

What the Scout Must Know of Founding

Requirements for a scout to win a badge in foundry work are shown by the following examination paper:

1. (a) Make a freehand working drawing of a flask used for bench molding in the foundry.
   (b) Describe the flask.
2. (a) Show by section sketch a mold of a plate 12 in. long, 6 in. wide and 1 in. thick, with gate and vents.
   (b) Construct the mold.
3. Make a perspective sketch of a pulley pattern 6 in. in diameter, 2 in. face, the center to be cored 2 in. by use of core prints.
4. Construct a wood pattern and core box, as per sketch outlined in preceding paragraph; use shrinkage rule for gray iron. Change measurements to allow for finish all over the casting and proper draft for removing pattern from mold.
5. Describe how a cupola operates.
6. (a) Describe a process for cleaning one of the above castings when removed from mold.
   (b) Clean one of the above castings.

THIS Merit Badge Is Awarded to Boy Scouts Who Win Distinction in Foundry Work. The sixteenth anniversary of the founding of the organization is being celebrated in the United States this week

Everything in This Troop Cabin of Troop No. 1 at Dallas, Texas, Was Home-Made. These Are Boys in the Scoutmasters' Troop Blacksmith Shop Forging the Hinges for the Doors.

7. Describe the properties in sand that are best suited for foundry use and tell how to prepare sand for use.

8. What important safety first precaution should be taken to protect the workers in a foundry, both by the employer and by the employee?

NOTE: In each case when a mold is required, the pattern must first be made.

The emphasis is always on what the scout actually does—not book knowledge, or the ability to write interestingly about his visit to a foundry, but actually to make patterns, molds and castings and to clean them.

Surprising Interest in Vocational Training

It may come as a surprise to some, who think of the boy scouts of America as an entirely recreational movement, which takes boys camping in the out-of-doors, to learn that scouts are encouraged to work along technical lines as well. As a matter of fact, vocational training through its merit badge system is an important feature of scouting. Over 70 pamphlets similar to that on the foundry are issued, so that a boy may become proficient in a good trade that appeals to him, such as plumbing, automobiling, carpentry, electricity or printing. About 200,000 badges for merit in these subjects were issued last year alone. The total number runs into the millions.

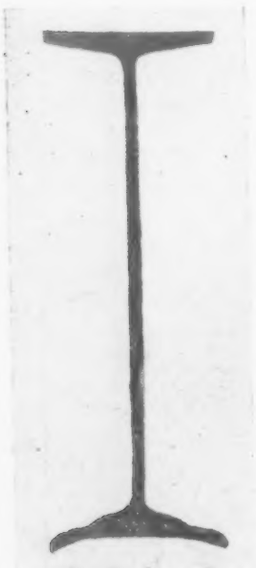
This is fine training of a practical sort. As the demand for the merit badge in foundry work was so great that the national headquarters has issued this pamphlet, it is clear that there are many boys in metal working centers who are also scouts. Some of the most successful troops, it is asserted, are organized in industrial centers, and actually in connection with factories. The scout activities appeal particularly to boys in congested sections of cities. Camp, hikes in the open, building a fire without matches and cooking dinner over a forked stick—those things all boys like, whether they go to school or go to work.

As an investment in boyhood, this movement has proved a success. It is the idle boy who patronizes pool parlors and, perhaps, bootleggers, or gets to drifting with the wrong gang, and ends up with petty larceny and a jail sentence. To keep the boy happily amused, with plenty of activities which he likes and which train his character, is the object of the national officers of the Boy Scouts of America, and applications to the headquarters at 200 Fifth Avenue, New York, will probably bring a copy of the pamphlet.

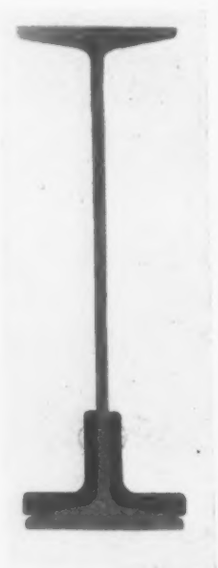
Develop New Type of Monorail

Two Rail Steel Angles Riveted to I-Beam Protect Bottom Flange from Wear and Deformation

A NEW form of monorail, consisting of two rail steel angles riveted to an I-beam, has been developed by the American Brass Co., Waterbury, Conn. The standard structural I-beam, which was originally used for the monorail system, proved unsatisfactory because of the wear and deformation caused by high-speed trolleys carrying heavy loads. The soft steel in the beam hardened, apparently because of the rolling or hammering of the wheels, and subsequently hardened pieces were torn loose, varying in size from small flakes to strips up to ⅛ in. thick by 3 in. long.



A Standard Structural I-Beam Removed After a Few Months of Service, Showing Wear and Deformation Caused by Trolleys



The Monorail Now Used Consists of Two Special Rail Steel Angles Riveted to an I-Beam. This provides adequate wearing surface

The destruction of the beam was found most pronounced with trolley wheels having a slightly spherical tread, giving a point contact on the tapered beam flange. It was still very rapid when the trolley wheels were placed in a vertical plane and tapered to correspond with the flange angle of the beam, providing line contact.

The life of the beam was lengthened somewhat by making trolley wheels with straight treads and mounting them at an angle corresponding with the flange angle, but the improvement was so slight as to be negligible.

A beam rolled from rail steel was tried and found unsatisfactory, since the special rolling and stocking of various sizes and weights of beam is expensive and the steel is too brittle to be used safely for suspended operation.

The use of tapered hard steel strips riveted to the bottom flange of a beam was also tried, but the strips invariably lengthened and humped up between riveted connections.

The construction finally adopted consists of two special rail steel angles riveted to an I-beam. One leg of each angle is tapered to correspond with the standard flange angle of the beam, and the other leg is made straight and punched for riveting through the web of the beam.

The angles are cut in lengths corresponding with the length of the beam, but are so fastened to the beam that one angle projects a foot beyond each end of the beam. As a result of that arrangement the joints of the angles in either side of the beam are not in line with each other or in line with the joint in the beam itself.

This monorail, which is now used in all the plants of the American Brass Co., has proved most satisfactory. In no case has it been found necessary to make any replacements, and records show that it has entirely prevented injuries to crane operators from flying splinters of steel ground from beams. Moreover, it has eliminated almost entirely the jar of wheels on joints which previously racked and loosened beam connections and has reduced crane delays and the cost of maintenance by more than 50 per cent.

The rail steel angles are purchased from a mill which rolls and stocks them in one standard size, bends them to any desired shape and furnishes them fastened to new beams or punched for connection with old beams. The angles can be applied without difficulty to an I-beam of any standard size or weight.

Gears Heat Treated Electrically

Normalizing and Hardening in Automatic Furnaces—Compensating Action of Heat and Large Savings Are Features

TWO new types of continuous automatic electric furnaces for heat treating operations, in connection with the manufacture of automobile gears, recently were installed in one of the Detroit plants of the General Motors Corporation. One of these is an annealing furnace for normalizing ring gears, pinions and differential gears, and the other is for hardening such gears after carbonizing.

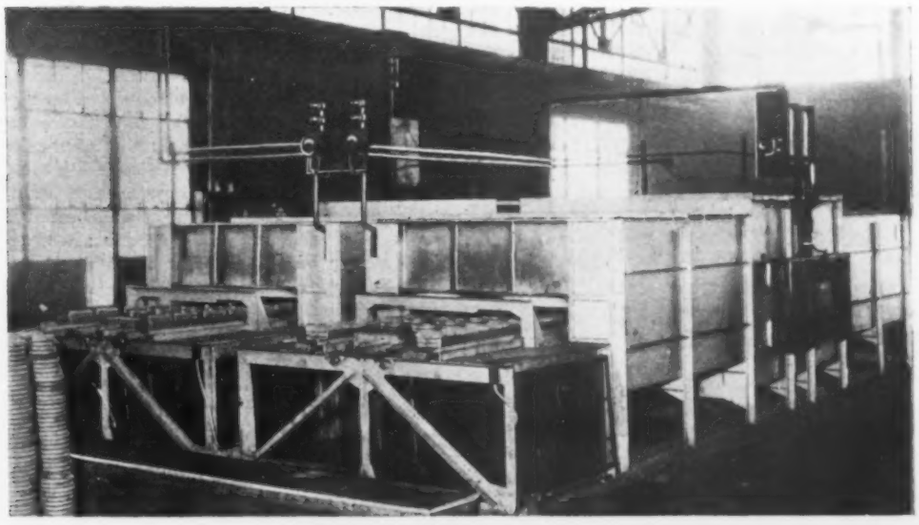
The Ring Gear Normalizing Furnace

An outstanding feature of the first or normalizing furnace is that work enters and is discharged from each end. There are four conveyor tracks in the heating chamber, the two on the inside carrying work in one direction and the two outer lines moving the material in the opposite direction. The cold work entering either end absorbs the heat from the hot work coming out, so that the former is pre-heated and the latter is partially cooled. This arrangement has given the furnace its designation as a compensating type furnace. It is claimed that over 50 per cent of the heat from the work is reclaimed by being absorbed by the cold work.

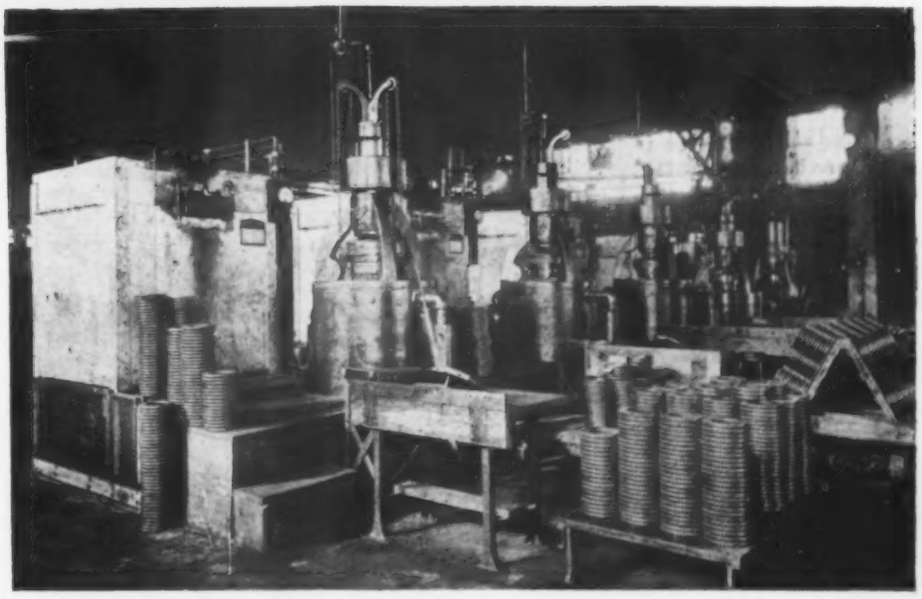
The furnace, which was designed and built by Holcroft & Co., Detroit, is 26 ft. long and has a heating chamber 5 ft. 3 in. wide and 1 ft. high. It is divided into three zones, a pre-heating, a heating and a cooling zone. It takes 3¼ hr. for the work to make its cycle through the furnace, 45 min. in the heating zone and 75 min. in each of the other two zones. The temperature of the heating zone is 1650 deg. Fahr. The furnace is heated by six Holcroft removable heating units. Its rated capacity is 170 kw.

Current is supplied at 440 volts, 60 cycles, 3 phase. Two furnaces of this type, located side by side, are in use and the output of each is 2550 lb. per hr., or 15 lb. of work per kw. hr. The temperature of the furnace is automatically controlled by a Leeds & Northrup controlling and recording instrument.

A pusher drive of a standard type is provided for carrying the work through the furnace. The gears weigh from 2 to 20 lb. and are placed in nickel-chrome



Electric Heat-Treating Furnace for Normalizing Steel Ring Gears for Chevrolet Automobiles



Vertical Pusher Type of Ring Gear Electric Hardening Furnaces. The Gleason quenching machines are in the foreground

steel pans 12 in. wide, 12 in. long and 3½ in. high, but with open ends so that when the pans are placed together, end to end, they form a trough extending through the furnace chamber. The track, along which the pans of work are pushed, consists of two rails for each of the four lines. The rails in the high heat zone are of nickel-chrome steel.

The drive consists of a 2-hp. motor, a worm type speed reducer, and a Reeves transmission at each end. The pusher arms, operated by cams, are connected to pusher blocks on the loading table, which extends out 6 ft. from each end of the furnace. When a block is drawn back, it leaves space for the placing of another pan between the block and the first loading pan. A guard is provided a short distance from the front of the furnace entrance to prevent loading the pans too high for the work to enter the chamber.

The two furnaces require only two attendants. One man loads the in-going work and unloads the out-going work at one end of the two furnaces, this being done by hand. When an out-coming pan is unloaded, the attendant pushes it over to one of the in-going lines for reloading, so that very little handling is required outside of handling the work itself. From the pans the gears are loaded on trailers to be hauled to the machine shop.

The electric normalizing furnaces take the place of box type oil-fired furnaces. It is expected that their use will result in a great saving, in that the product is claimed to come from the electric furnace in a much more uniform quality than it did when it was normalized in the oil-heating furnaces. Work from the latter type furnaces, it is stated, showed wide variation in the hardness of the normalized stock, due to the quick cooling of the outer surface after removal from the furnace, and this was reflected back to the machine shop where the cutting speeds and feeds had to be set to suit the hardness. When normalized in the electric furnace, it is stated that the work is cooled sufficiently in the cooling section of the chamber so that it is not affected when, on removal, it is exposed to the outer air. Another important saving that is expected is in the cost of upkeep as compared with oil-burning box type furnaces.

The Ring Gear Hardening Furnace

The second type of electric furnace in this plant, which is an interesting development in furnace design, is a vertical pusher type ring gear hardening furnace for hardening after carbonizing. This furnace, also designed and built by Holcroft & Co., has outside dimensions of 4 ft. 7 in. in length and width, and 8 ft. in height. Six bars of nichrome steel, fastened at the top and bottom of the heating chamber, serve to guide the gears in their vertical passage through the furnace, and other metal parts in the heating zone are of the same material. The guide bars are surrounded by a Holcroft non-inductive spiral-wound heating unit. The cylindrical heating chamber is surrounded by calcined block casing 4½ in. thick, and it is further insulated by an insulating material 10½ in. thick. The outside case is of ¼-in. steel plate and angle construction, sufficiently riveted and braced to make a solid compact case. At the top of the furnace is a removable cover, so that free access may be had to the heating chamber and the heating unit.

The gears move through the furnace in the form of a vertical stack and, aside from feeding the gears into and removing them from the furnace, the operation is automatic. The mechanical mechanism consists of a slide under the hearth at the side of the furnace and a plunger which raises it into its position at the bottom of the stack. When the gear is raised, it is held in place by three latches located at equal distances around the circumference of the gear. Then the plunger returns for another gear. The slide which carries the work to a point directly above the plunger is operated by a cam and gear. The drive of the furnace mechanism from the motor is through two speed reducing units, a James speed reducer and a Reeves variable speed reducer.

The furnace has one attendant who feeds the gears into the slide at the bottom and removes them from the top of the stack through a small door near the top of the furnace. The attendant opens this door by means of a foot-operated lever on the floor.

The furnace when loaded holds 60 gears and the gears are kept in the furnace one hour. It is always kept filled to its capacity. While its rated output is 60 per hr., or one per min., it is usually being operated at the rate of 54 per hr. On a man-hour basis this output per man per hour compares with the production of 45 gears per man per hour with the box type furnace formerly used.

The furnace temperature is 1500 deg. It takes 20 min. for the work to come up to heat and it is kept up to soaking heat 40 min. No harm is done if the gears are kept heated for a longer period and, when the plant shuts down Saturday noon, the gears in the furnace are left there until Monday morning.

The furnace has a capacity of 60 kw. Its output is 600 lb. of work per hr. or 10 lb. per kwhr. It uses a 220 volt, single phase current, stepped down from 440 volts. The temperature is controlled by a Leeds & Northrup single point controller. Signal lights are provided at the side of each furnace, a purple light showing proper temperature and a red light indicating too high a temperature.

When an attendant takes a gear from the furnace, he places it in the die of a Gleason quenching machine. After quenching he puts it on a drain rack to allow the oil to drain off. Then he puts it on an adjoining table for gaging.

There are five hardening furnaces arranged in a row, three for regular production, one for truck gears and one for service work. Each furnace is served by a quenching machine located at the side of the front. There is a saving of 20 per cent in labor and no increase in heating cost, it is said, but probably a decrease in heating cost with the use of the electric hardening furnaces as compared with the box type furnace, according to estimates made in the heat-treating department of this plant. Owing to the even temperature, gears come out with an even hardness and the product is generally better. There is virtually no scale. No sand blasting is required and very little brushing is necessary. This means a considerable saving in cleaning as compared with the former heat-treating method. There are practically no rejections for warp. The human element has been practically eliminated. Smoke fumes and heat have been almost entirely done away with, so that working conditions in the plant have been improved with the use of the electric furnace, and in addition, there is a saving of 50 per cent in floor space.

Large Mine Hoist in Birmingham District

The Woodward Iron Co. has had built by the Hardie-Tynes Mfg. Co., Birmingham, a mine hoist for its No. 2 ore mines on Red Mountain, capable of handling 20 tons of ore each trip. The hoist will operate two skips in balance at a speed of 3000 ft. per min. on a 30-deg. slope. The drum is of the cylindro-conical type, the cylindrical part being 12 ft. diameter and the small end of the conical part 8 ft. in diameter. Overall length is 17 ft. and the entire drum has a rope capacity of 3750 ft. of 1½-in. rope. The drum shaft is 30 ft. long. The shaft has a 6-in. hole bored through the center the entire length on a gun-boring lathe to facilitate inspection and as a guarantee against defects.

More Steel Furniture Sold

WASHINGTON, Feb. 6.—Thirty-two companies in the "business group" received orders to the value of $2,454,277 for steel furniture in December, 1925, as against $1,975,117 in November, according to the Department of Commerce. December shipments were valued at $2,418,577, and unfilled orders aggregated $1,531,505. Both orders received and shipments in December were the highest in more than a year. In the "shelving" group, December orders were valued at $620,947, as against $686,814 in November. Shipments in December were valued at $788,461, and unfilled orders were valued at $570,941. Shipments were much the highest in more than a year.

Hardening and Tempering Steels*

Effect on the Thermoelectric Electromotive Force —Method Used in French Tests—Value in Tool Steel Hardening

THE purpose in undertaking the work to be described was to study the effects of hardening and of tempering on the thermoelectric electromotive force of a few steels, using the very simple method devised by Galibourg (THE IRON AGE, Vol. 109, 1922, pages 1291-1292). The apparatus is essentially as follows:

> A pure iron wire, *B*, Fig. 1., arbitrarily chosen as standard, is connected at one end, *b*, to the positive terminal of the millivoltmeter *G*, while the free end b^1 dips in an electrically heated mercury bath. The negative terminal of the millivoltmeter is connected to the steel clamp *P* which is kept at constant temperature by passing water through it. The end *a* of test piece *A* is held in the clamp, while the other end, a^1, dips in the mercury.

Under these conditions, when equilibrium has been reached the deflection of the galvanometer gives a measure of the thermoelectric e. m. f. of the couple consisting of the test piece and standard wire, between the temperature of the atmosphere and that of the mercury bath, provided that the millivoltmeter has a high enough resistance and that the water passing through the clamp is at room temperature. The only function of the mercury is to insure a perfect electric connection between the test bar and the standard wire.

Though the author of the method had put it forth merely as a shop method to complete the Brinell test for the rapid identification of steels, particularly of special steels, it readily lends itself to systematic investigations in commercial laboratories, provided certain precautions are taken.

Under given conditions duplicate determinations carried out on the same sample by careful and experienced operators should not differ by more than 0.02 millivolt, provided attention is given to the following points:

> Water should be circulated in the clamp at such a rate that the contact *a* of the test bar is kept at a constant temperature. If the length and cross section of the bar are such that, when thermal equilibrium has been attained, its temperature at some point between the mercury bath and the clamp is the same as the room temperature, the water can be cut off.
>
> The mercury should be perfectly clean, which can be obtained only with a thorough cleaning of the test bar.
>
> The mercury should be agitated continually during the test.
>
> The bar should be held in a fixed position and should not touch the side of the mercury bath.
>
> The various contacts and connecting wires should

(*Continued on page* 458)

*Translated abstract by A. Rapineau-Couture, of an article by P. Nicolau in *Revue de Métallurgie*, Vol. XXII. August, 1925, pages 539 to 544.

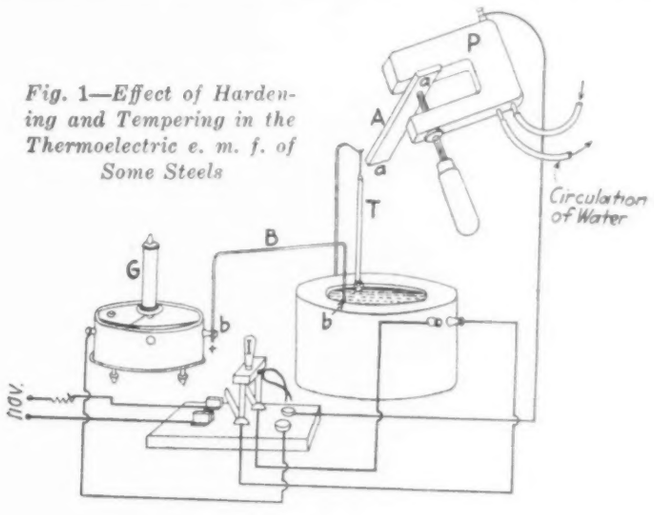


Fig. 1—Effect of Hardening and Tempering in the Thermoelectric e. m. f. of Some Steels

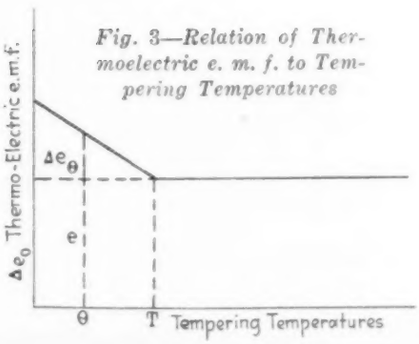


Fig. 3—Relation of Thermoelectric e. m. f. to Tempering Temperatures

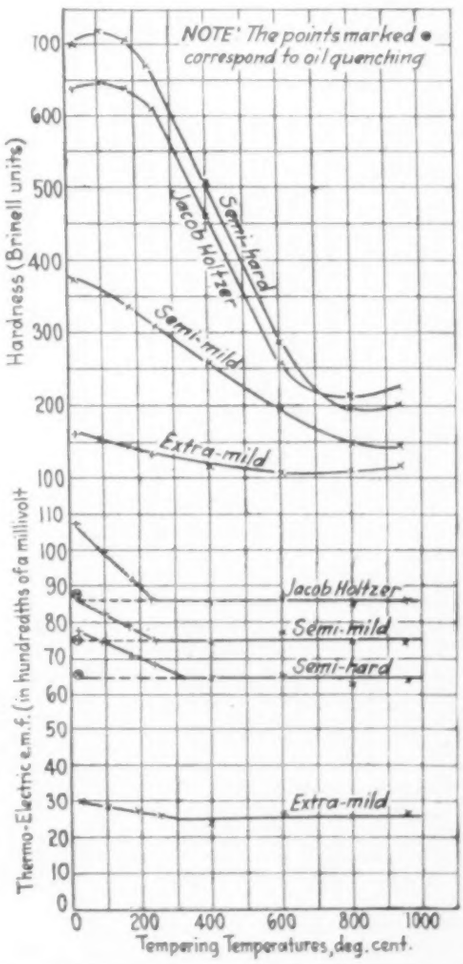
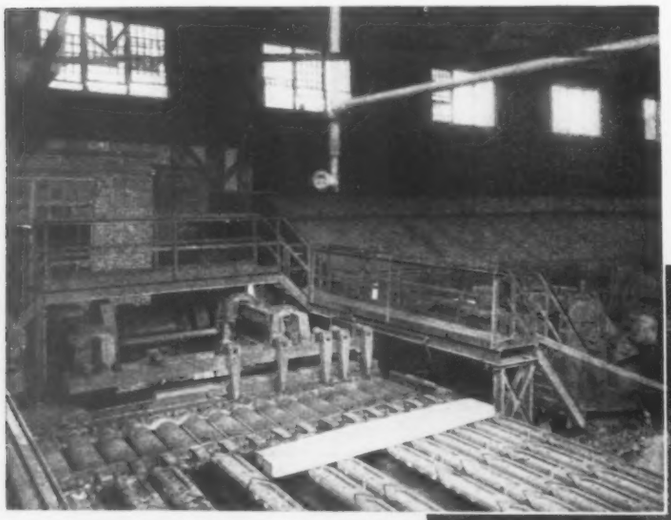


Fig. 2—Variation of the Thermoelectric e. m. f. and Other Brinell Hardness as Functions of the Tempering Temperature. (Carbon steels quenched in water at 20 deg. C.)

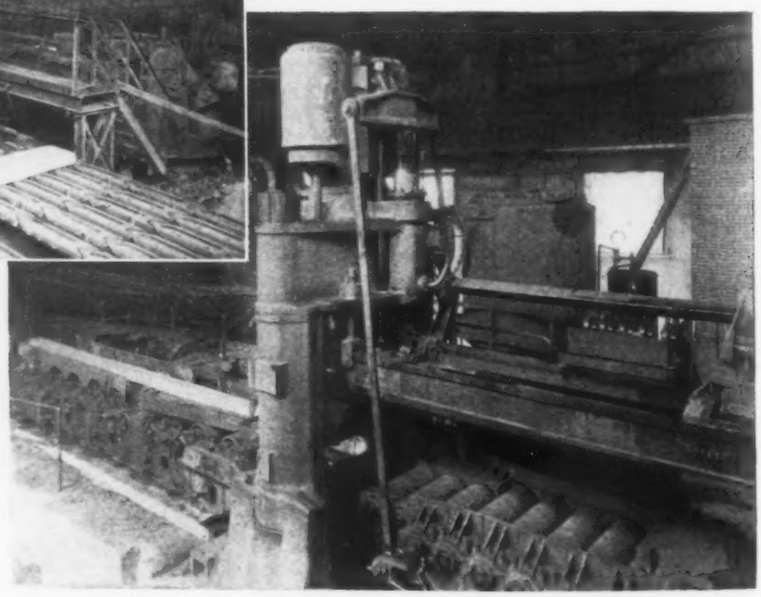
New Lackawanna Rolling Mills

Two New Finishing Mills and Rebuilding of Blooming Mill—Electric Drive Extended —Scrap Reclaiming

DESCRIPTION of the new coke ovens, gas-driven blowing engines and rebuilt open-hearth department of the Lackawanna plant of the Bethlehem Steel Corporation appeared on pages 40 to 45 of our Jan. 7 issue. In the present installment of the article are described a new 35-in.-28-in. structural mill, which has been operating for several weeks, and a still newer 18-in.-14-in. structural mill for light sections, which is expected to go into operation early in the spring. Herein also are discussed the rebuilding of No. 7 blooming mill, installation of electric drive on other mills, a new scrap reclaiming plant, etc.



Billet Transfer and Pusher at No. 7, 40-In. Blooming Mill (Upper Left). Between the rollers appear the scale fingers used in weighing billets to check gage setting



New Hydraulic Shear (Right), with Intensifier Beyond. The section of roller table in foreground may be moved back and forth to accommodate dropping long crop ends or to permit billets to pass over

No. 7 Blooming Mill

Changes at the 40-in. blooming mill, known as No. 7, include the installation of a complete new mill train with tables, together with an electrically operated manipulator, in place of the old hydraulically operated manipulator, electric drive in place of steam-engine drive, a considerable amount of new work around the soaking pits, a new Mesta hydraulic shear and new tables both sides of the shear. The table engines have been replaced by motors. As a result of these changes this mill may be said to have been practically rebuilt.

Use of coke oven gas in the soaking pits is expected to produce economies through ease of control, uniformity of result and adequacy of supply. Two new soaking pit cranes of the Morgan stiff leg type have been installed, each of 15 tons capacity. These will handle the larger ingots to be rolled on the rebuilt blooming mill.

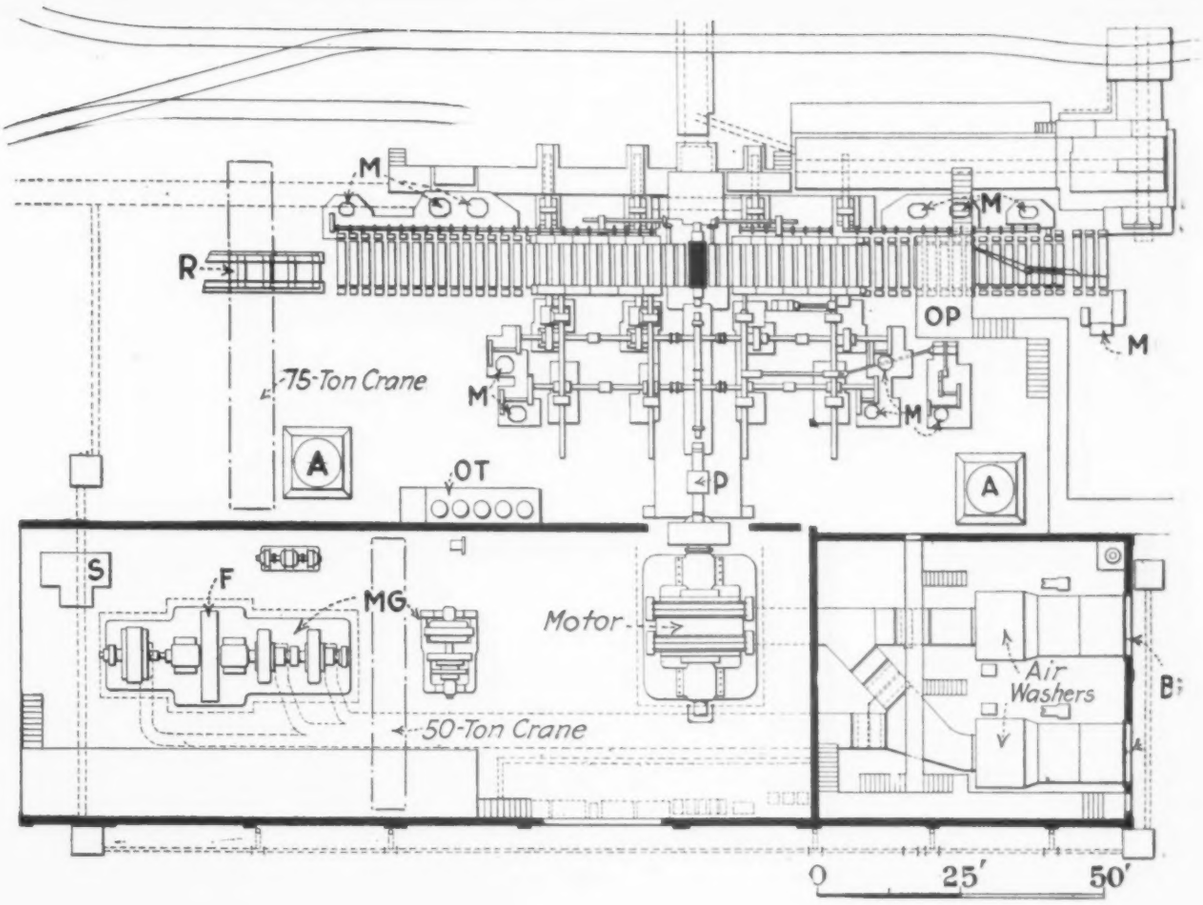
Electric drive of this two-high mill is by means of a Westinghouse reversing motor rated at 7000 hp. and operating with 750 volts d.c. The motor has a torque capacity of 2,000,000 ft. lb. and its speed is placed at 50 to 120 r.p.m. To provide current for the motor a motor-generator set, rated at 3750 hp. and 368 r.p.m., takes three-phase current of 25 cycles at 6600 volts.

Another motor-generator set of 1000 kw. produces direct current at 250 volts for operating the table motors, manipulators, etc. Air washing and cooling equipment on the Carrier system has been put in for ventilating both the mill motor and the motor-generator sets and keeping them cool while running.

At the new 800-ton hydraulic shear a Mesta table has been provided which may move away from the shear, to permit dropping of crop ends up to 30 in. in length, or may close the gap and allow blooms or billets to pass over. Crop ends are carried away by crop conveyor and delivered automatically into cars.

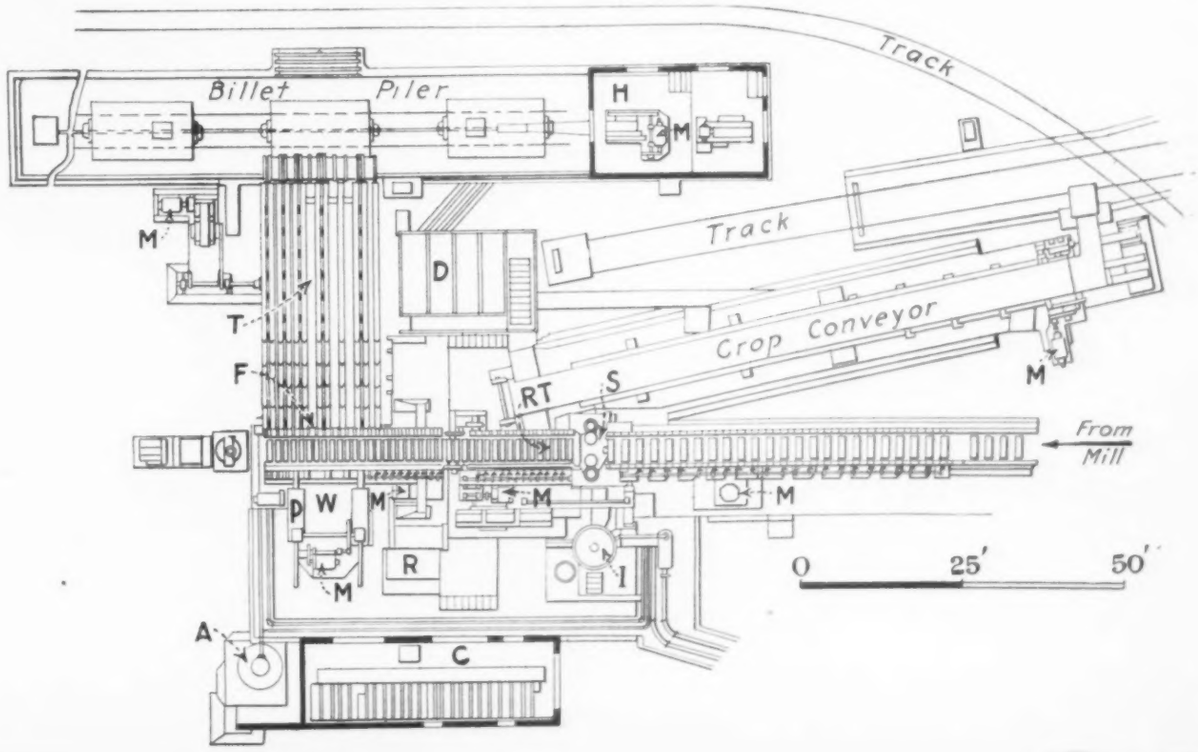
One unusual feature just beyond the table is a disappearing bloom scale provided by the Mesta Machine Co., Pittsburgh. This is used customarily to weigh the first bloom from each ingot and thus to check the position of the cutting gage. By this means excessive cropping is avoided at later stages in the making of the finished steel. Fingers, rising between table rollers, lift the bloom off the table. The mechanism of the scale is between the two arms of the pusher, back of the table, while the registering arm, in the pulpit whence the pusher is controlled, is under the care of the operator there.

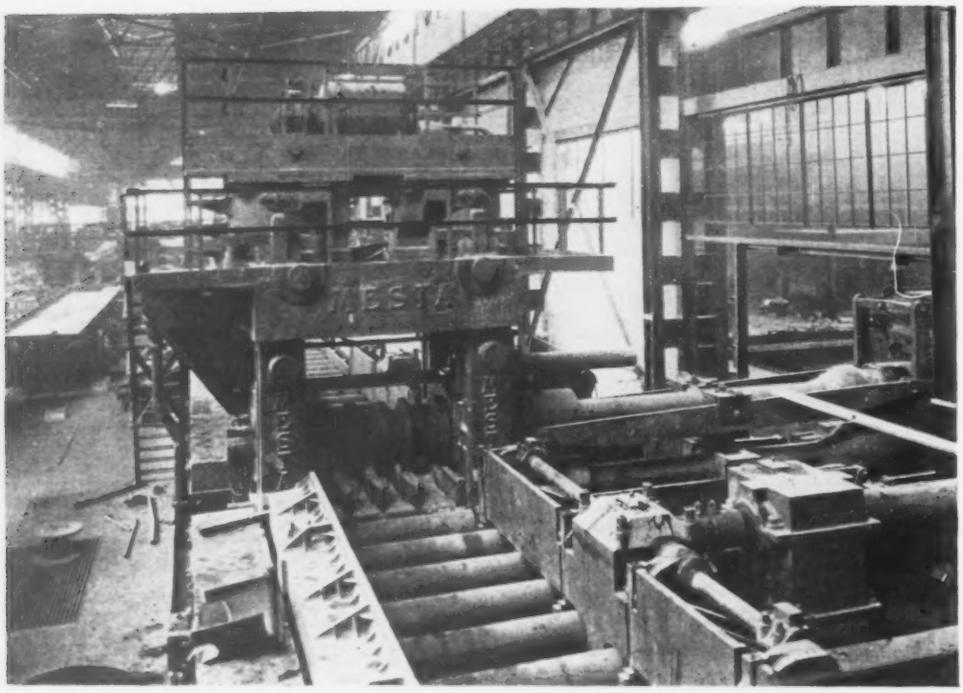
From the runout table of the shear the blooms are pushed off onto a transfer of the reciprocating type, which delivers them directly onto cars located in the billet yard alongside of the mill. Two 20-ton electric



Rebuilt No. 7 Blooming Mill, with Its New Electric Drive Units, Is Shown Above. Steel approaches the mill from the right. Items of equipment indicated by letters are as follows: A—Accumulators; B—Air intake; F—Flywheel; M—Small electric motors; MG—Motor-generator sets; OP—Operators' pulpit; OT—Oil tanks, high-pressure; P—Pinions; R—Run-out table to shear; S—Slip regulator. Position of main rolls is shown solid black

New Shear and Accessories to Serve the No. 7 Blooming Mill (Below). Cars for crop ends and buggies for piled billets are moved from the house H. Other lettered items are: A—Accumulator; C—Control house; D—Operator's pulpit; F—Scale fingers; H—Piler and crop car drive house; I—Intensifier; M—Electric motors; P—Pusher; R—Recorder house; RT—Retreating table; S—Shear; T—Transfer; W—Scale mechanism





Approach Side of 35-In. Structural Mill, with Manipulator Mechanism at Right. At extreme left, beyond the mill, appears one of the traveling tables serving the 28-in. mill. Motor room is beyond partition, at right

overhead traveling cranes from the Cleveland Crane & Engineering Co. serve this yard. The pusher, transfer table and crop conveyor were furnished by the Treadwell Engineering Co., Easton, Pa.

New Structural Mill Equipment

To replace structural mill No. 3, which dates from 1904, a new 35-in.-28-in. structural mill known as No. 12 has been built. To permit its construction, No. 11 bar mills, 16-in., was dismantled. Production in the new mill will include I-beams up to 24 in., channels up to 15 in., angles up to 8 x 8 in. and sheet piling. The new equipment includes a billet yard, running past the ends of both this No. 12 mill and the new No. 14 mill described later, and heating furnaces with charger type cranes and electrically operated throughout.

As shown by the diagram, the new mill consists of one two-high stand of reversing 35-in. rolls and three stands of 28-in., the first two of which are three-high, while the finishing end is two-high. The 28-in. stands are all in line and are driven by a single motor. Serving the 28-in. mill on each side are two traveling tilting tables to handle the steel going through. Three traveling roller trains operate in conjunction with the tilting tables. The plan shows a reversed fan-shaped runout on either side, to take care of extra long sections. To conserve floor space these fan sections slope upward at a fairly sharp angle.

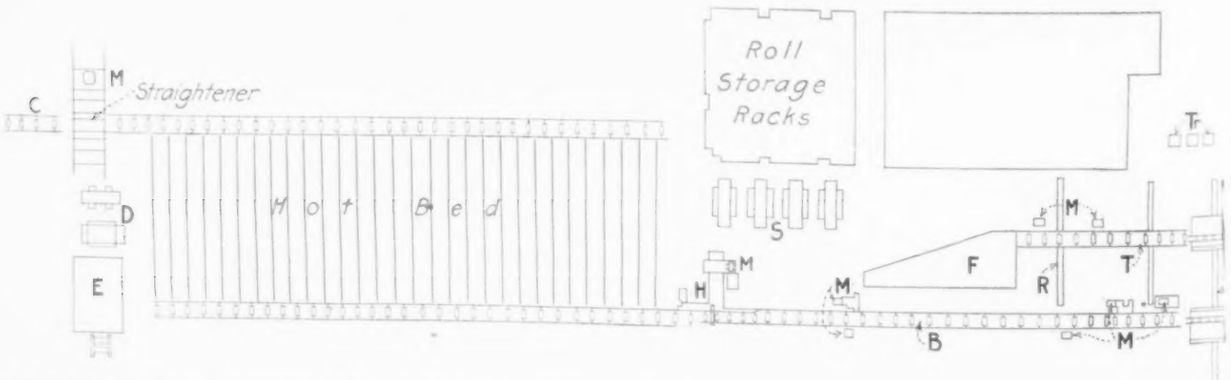
Consideration of this structural mill begins with the billet yard at its north end, equipped with two 20-ton Cleveland cranes. Placed on a runway of sufficient span to give large storage capacity, these cranes will handle all of the semi-finished steel going into both the No. 12 and the No. 14 mills.

Four sand-bottom furnaces are located at the end of the building adjacent to the billet yard, two being on either side of the approach table for the mill. Provision is made for two additional future furnaces between the four present furnaces and the mill. Each furnace measures 21 ft. 3 in. x 52 ft. outside the brick work, with a hearth of 19 ft. x 38 ft. in rectangular dimension. The furnace regenerators measure 15 ft. wide inside and 19 ft. long, with 18 courses of brick in each chamber. Coke oven gas is the fuel.

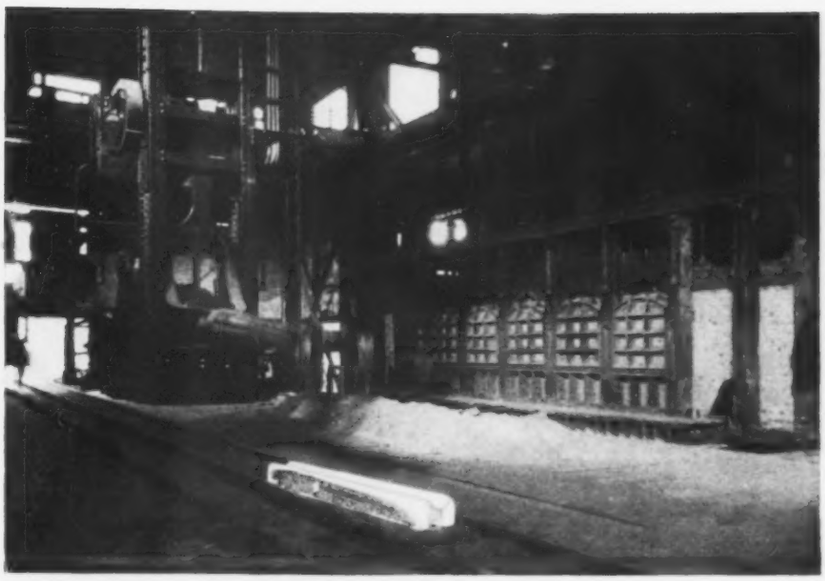
These furnaces are served by two 10-ton Alliance Machine Co. charging cranes of the revolving type. The furnace doors are electrically operated, thus avoiding all of the trouble incident in winter to the use of hydraulic operation. The approach table came from the Morgan Engineering Co., Alliance, Ohio.

The 35-in. mill, its electric manipulators and its front and back tables are products of the Mesta Machine Co. The traveling roller tables and traveling tilting mechanism for the three 28-in. stands, as well as the hot bed and the runout tables to the hot saw, were furnished by the Morgan Engineering Co. The hot saw came from the United Engineering & Foundry Co., Pittsburgh. Two 75-ton Alliance cranes, with 86 ft. 6 in. span, serve the mills.

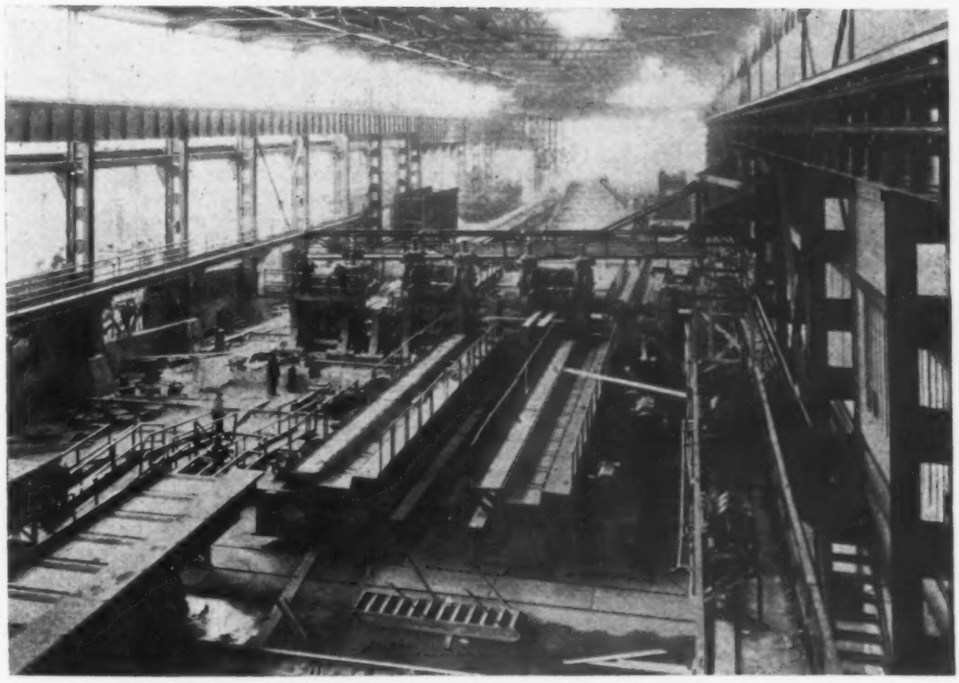
Electric equipment for operating this mill includes two Westinghouse motors of 1,000,000 ft. lb. torque each. One motor, rated at 3500 hp. and of 50 to 120 r.p.m., drives the 35-in. stand. The other motor, of



Layout of New Structural Mill at Lackawanna Plant. Steel moves from billet yard at right through A—Approach table; B—Runout from 28-in. mill; C—Runout to structural shipping yard; D—Spare straightener motors; MG—Motor-generator set; P—Pinions; R—Rails for travelers; S—Spare roll stands for 28-in. mill;



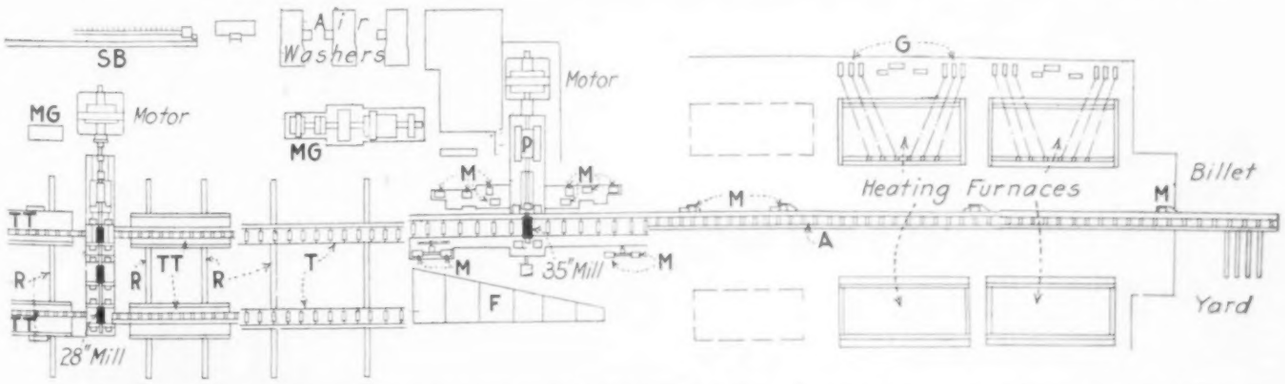
General View (Below) of 28-In. Portion of Structural Mill. The three stands, in line, appear in middle distance. Motor room is back of the partition at right. Two traveling tilting tables appear in middle of picture, with the ends of two more traveling tables at left. Similar equipment is placed beyond the three stands. One of the fan-shaped runouts shows above the right hand mill stand



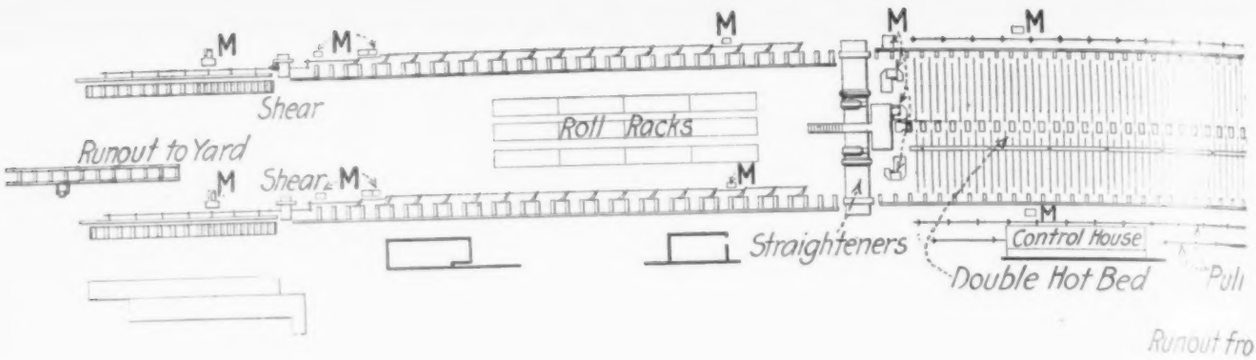
Semi-Formed Bloom Drawn from Furnace and Ready for Rolling on the 35-In. Mill (Above). The charging machine, depending from overhead crane, appears above bloom. All furnace doors are operated electrically

5000 hp. and a speed of 75 to 150 r.p.m., drives the three 28-in. stands. A single motor-generator set, run by a 7500-hp. induction motor operating at 368 r.p.m., transforms three-phase 25-cycle current at 6600 volts into direct current at 700 volts for the use of the two mill motors. This set includes a flywheel and three generators, one of which provides current for the 3500-hp. motor of the 35-in. mill, while the other two supply the 5000-hp. motor.

Three air washers, all interlocked and rated each at 40,000 cu. ft. of air per min., are located on the west side of the motor room. While one is intended for the motor for the 35-in. mill, one for the motor for the 28-in. stands, and one for the motor-generator set, the



furnaces, rolls and straightener and out to shipping yard at left. Lettered items of equipment are as follows: roll stands; E—Roll storage racks; F—Fan-shaped runout; G—Door hoist motors; H—Hot saw; M—Electric SB—Switchboard; T—Traveling tables; Tr—Transformers; TT—Traveling tilting tables



Layout of Small Structural Mill, with 18-In. and 14-In. Rolls. Steel passes from furnaces at right and follows D—Drop saw; G—Bevel gearing; H—Herringbone gear set; M—Electric motors; MG—Motor-generator sets;

interlocking arrangement makes a flexible provision for use as needed. A 75-ton Alliance crane, with 60-ft. span, is mounted in the motor room.

Duplicate roll sets for the 28-in. mill include an entire spare set of stands, three in number, located on four bases similar to those on the mill. The spare base is to receive the first stand removed from the mill on changing rolls. Then one of the duplicate stands is picked up and put into the mill, thus releasing another base for a second of the old stands, etc.

A hot bed of wide extent takes the product of the 28-in. mill, after it passes the hot saw. Two operating pulpits are provided, one on either side of the building, control from each being extended to half the hot bed width, and the hot bed is divided at half length, into two separate units. The straightener rolls are in line with the roller table on the west (or far) side of the hot bed.

At the runout end of the hot bed the roller straightener, made by the United Engineering & Foundry Co., has a spare straightener set provided, to conserve time in making changes. Over the straightener is a 75-ton Alliance crane. In the finished steel yard, beyond the mill, are two gag straighteners for I-beams, together with a punch for sheet piling, two cold saws and one angle shear, with a system of transfer beds for serving them. This steel yard includes a total of six parallel bays for the product of the mill, served by a total of eight new Cleveland 10-ton cranes.

Between the No. 12 mill and the No. 14 mill is a scale pit into which scale is flushed by water from both. It flows through tunnels, from under the mills and roller trains. Scale from the pit is handled by a 10-ton Alliance bucket crane into cars, for transportation to the open-hearth department.

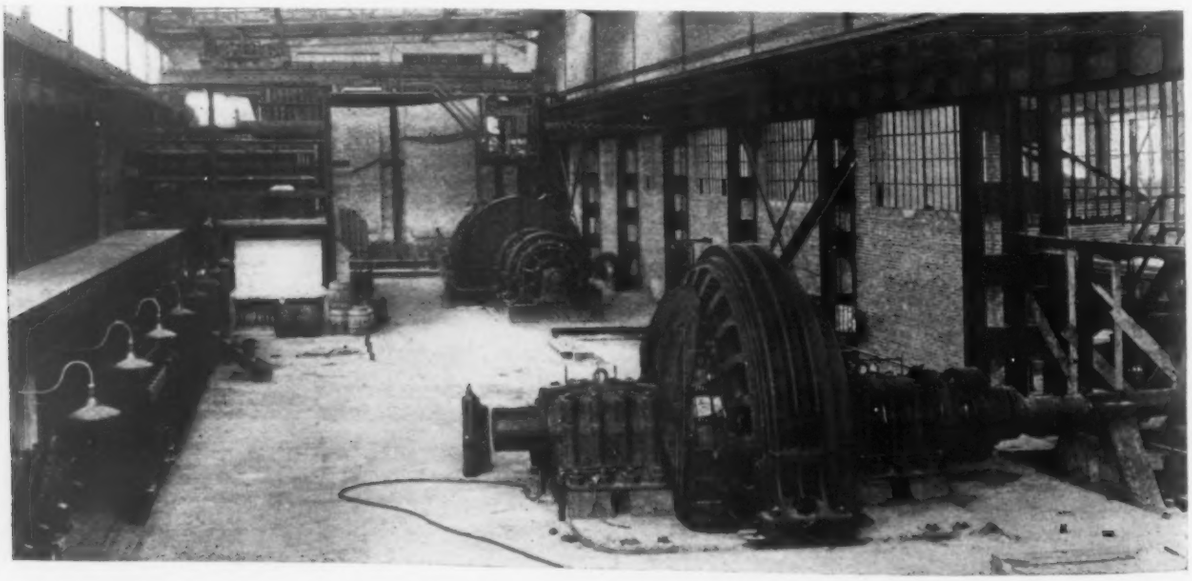
No. 14 Mill Not Yet Completed

For production of light beams, channels, angles, flats, sections and rounds, a new 18-in.-14-in. structural mill is being installed. Much of the machinery is already set in position. This mill, as with No. 12, is to be motor driven throughout. It is expected that it will be ready to operate about March 1.

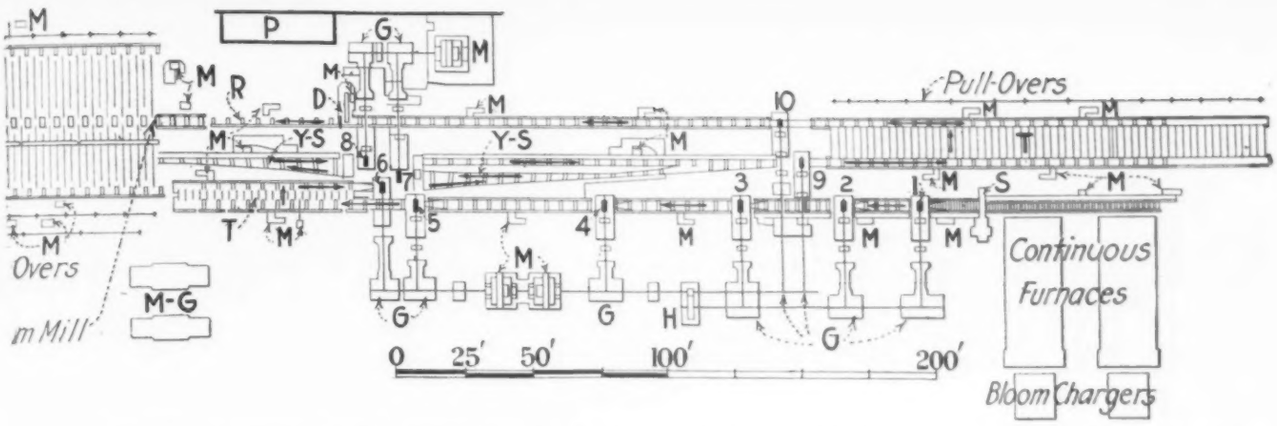
Two continuous heating furnaces, 53 ft. long outside and with a 17-ft. width inside, are to burn coke oven gas. They will be equipped with water-cooled skids resting on water-cooled pipe carried crosswise of the furnace, in place of the usual brick piers. They are from the General Furnace Co. Provision is made for adding a third unit, should this later become necessary.

This mill, which will include ten stands of two-high rolls on the continuous principle, has five stands of 18-in. rolls and five stands of 14-in. rolls. Mechanical drive for these stands was made by the Mackintosh-Hemphill Co., Pittsburgh. Bethlehem steel forgings were furnished for this mechanical drive. The motors and motor-generator set are of Allis-Chalmers make.

In handling long bars, this mill will make use of the Skew-Y tables of the Morgan Construction Co., passing material from one group of stands to the next. That company furnished the mill housings and pinions and the shears with back shear table. Mill housings and



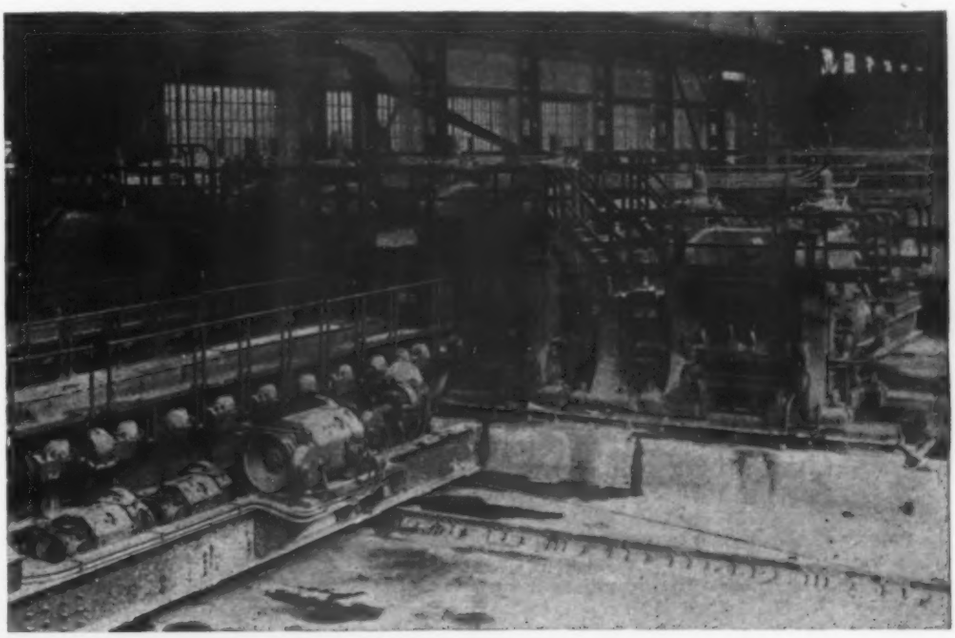
Motor Room of 35-In.-28-In. Structural Mill. In foreground is motor-drive for the three 28-in. stands. Beyond is the motor-generator set. Control room, switchboards, etc., are at left



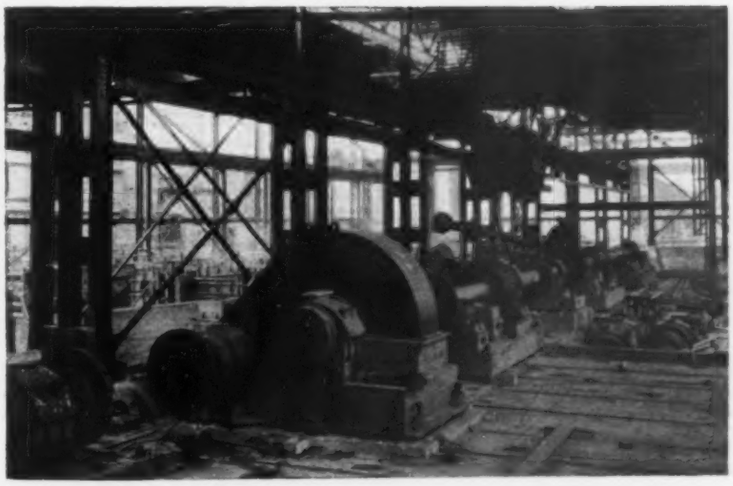
direction of arrows through stands Nos. 1, 2, 3 . . . 10. Items of equipment designated by letter are: P—Control house and pulpit; R—Runout to hot bed; S—Shear; T—Transfer table; YS—Y-skew roller table

pinions are set, in each case, upon a single cast steel foundation piece about 15 in. deep, furnished by the Bethlehem Steel Co. This preserves rigid alinement. The Birdsboro (Pa.) Steel Foundry & Machine Co. was responsible for the straight tables and the two transfers between tables. The hot bed and roller straightener came from the Morgan Engineering Co. The billet shear is from the United Engineering & Foundry Co., as is also the drop saw for cutting finished sections to length. The runout table to shear was furnished by the Treadwell Engineering Co.

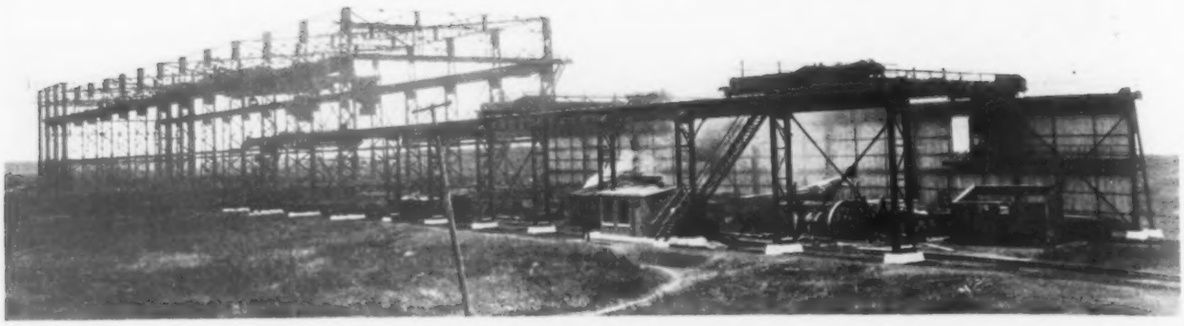
Crane equipment for this plant includes a 25-ton unit in the motor room, a 10-ton crane in the furnace room and two 15-ton cranes in the mill department, all from the Alliance Machine Co. The larger steel castings for the table work and for some of the motor parts are products of the Bethlehem foundries. Switching equipment and table motors are of Westinghouse make.



Exit side of the 28-In. Mill, with Three Stands of Rolls. One of the traveling tilting carriages appears at left. At extreme right, in background, the 35-in. stand is faintly discernible



In the Uncompleted 18-In.-14-In. Structural Mill Building. Gear drive mechanism for the mill stands appears in foreground, in a lean-to alongside the main building, which is at left of the columns shown. Completion of this mill is expected early in the spring



Scrap Reclaiming Plant in Southwest Part of the Yard. Shears and other equipment under the low-level cranes are supplemented by the high-drop arrangement at left. The low crane runway projects under the high one, to permit transfer of material. The sheathing back of the low craneway protects workers from biting winds from off the lake

The finished product of this mill enters two covered parallel runways. Provision is made in this area for installation of cutting off, straightening and shearing equipment for short lengths.

Scrap Reclaiming Plant

For breaking ladle skulls, cutting long pieces of scrap into charging box size, and reclaiming scrap and slag generally, a new plant has been built. This is located south of the coke ovens and west of the southern end of the new finished material shipping yard. A crane runway 800 ft. long, with 80-ft. span, includes a high-level section for the skull breaker, with two 15-ton cranes. The low-level section, also with two 15-ton cranes, has a span of 76 ft. and projects about half its length under the high-level cranes.

Magnets and drop balls, the latter up to 10 tons in weight, are used in handling and breaking the heavy scrap. The clear drop provided is 50 ft. Armor plate butts are provided, on which to break skulls and other large pieces. Shears for cutting up scrap and buckets for handling slag are included in the equipment. The side of the lower runway facing Lake Erie has been sheathed with corrugated steel, to protect the workers from chill winds off the lake.

Other Changes and Additions

While the items listed above constitute the main features of the reconstruction program, other important things have been done in this plant. An outdoor transformer station is being installed to handle additional electric power from Niagara Falls and thus to meet the increased demands due to the electrification of the plant and the installation of new mills. A distributing system for surplus coke oven gas had to be prepared, to deliver gas to the open-hearth furnaces and elsewhere.

Electric drive was installed on No. 5 mill, which is a 48-in. universal plate mill convertible into a 76-in. sheared plate mill. The motor, of 5000 hp., is rated at 1,000,000 ft. lb. torque. It runs at 75 to 120 r.p.m., taking current at 700 volts. The mill tables here have been equipped with modern motor drives, the hydraulic slab pusher replaced by an electrically operated pusher and the air-operated door hoists on the heating furnaces replaced by electrically operated hoists.

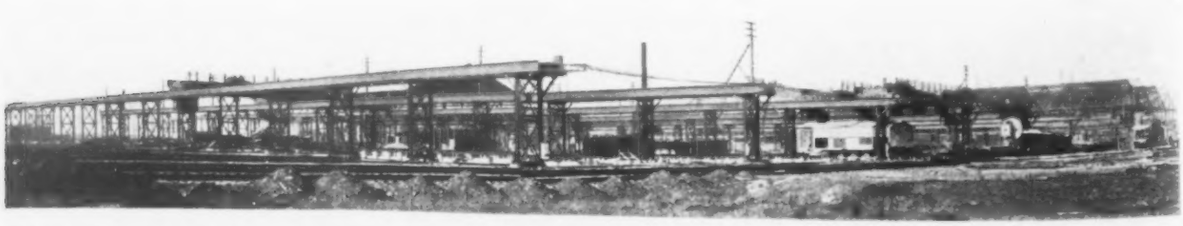
Welfare buildings scattered throughout the plant have been built in most substantial manner. These provide exceptionally good facilities for the men in the way of lockers, toilets and washing accommodations. An extension now being made on the stripper building, between the Bessemer and No. 2 open-hearth departments, includes a new 200-ton Morgan stripper crane capable of handling the larger ingots to be rolled on the new No. 7 mill.

Extensive replacements in the yard track system have involved the use of 105-lb. rails to replace the lighter rails formerly used. New rolling stock has been acquired, including locomotives as heavy as 85 tons for the open-hearth department and large numbers of a new type of charging box car using Hyatt roller bearings. These cars run so easily that the stockyard crane, with its magnet, pulls a considerable drag of them along the track without running the magnet-supporting cables off the drum.

Employees' living conditions have been well cared for, the company having contracted for the building of some 300 modern single houses of varying size and design. The houses are sold to employees on easy monthly terms. They are located in a development known as Bethlehem Park, within convenient walking distance of the plant.

As it was explained to the writer of this article, the aim in the new development at the Lackawanna plant was not, primarily, greater tonnage. Rather was it the attainment of lower operating costs, better working conditions and increased security of dividends. If, with these desiderata obtained, a somewhat higher tonnage also is had, this would be but a result naturally to be anticipated from new and well-considered equipment units.

Properties of Haynes Stellite are given in a 15-page booklet issued recently by the Haynes Stellite Co., Kokomo, Ind. The data are based chiefly upon investigations made by the Union Carbide & Carbon Research Laboratories, Inc., Long Island City, N. Y., and include hardness, resistance to abrasion, compressive strength, tensile strength, coefficient of friction, electric and thermal conductivity, magnetic properties, melting point, density, coefficient of thermal expansion and resistance to chemical corrosion.



Finished Structural Material Shipping Yard, with Uncompleted Shipping Shed Building in Right Background. Each bay is served by one or more 10-ton cranes

Revise Scrap Specifications

Sweeping Changes in Definition of No. 1 Heavy Melting Steel—Protection from Inclusion of Alloy Steel a Feature of Many Grades

WASHINGTON, Feb. 9.—Sweeping changes in the specifications for No. 1 heavy melting steel scrap and the insertion of a clause covering numerous grades of old material to insure blast furnaces and foundries against the purchase of steel with an alloy mixture, when not desired, were features of a conference held here Feb. 4, which adopted specifications for more than 100 items. The meeting was held in the Department of Commerce Building under the auspices of the Division of Simplified Practice, and was presided over by Director W. C. Wetherill of the committee on metals utilizations. It was attended by approximately 33 representatives of blast furnaces, steel plants, foundries, the National Association of Purchasing Agents, technical societies and Government departments. Many of the changes made were of a minor character. The specifications decided upon will be broadcast by the division to the industries and interests concerned, and the Department of Commerce is prepared to hold another revision conference at the request of any group in case the changes adopted last week prove unsatisfactory. The iron rolling mill specifications proposed were merely tentative and were not adopted.

The principal discussion regarding heavy melting scrap specifications related to the proposed elimination, finally decided upon, of a requirement that ¼-in. and heavier plate scrap be cut 12 in. by 12 in. Taking the place of this specification was a clause providing that plate scrap of smaller dimensions may be required by mutual agreement between buyer and seller. The recasting of the heavy melting scrap paragraph also provides for the inclusion of structural shapes, bars, etc., in a different form than heretofore, and reduces the size of coil springs from ½-in. to ⅜-in.

The revised specifications for No. 1 heavy melting steel, as adopted, follows:

> No. 1 heavy melting steel scrap is steel scrap ¼ in. and over in thickness, not over 18 in. in width and not over 5 ft. long. Individual pieces must be cut into such shape that they will be free from attachments and will lie flat in a charging box. Cut boiler plate must be cleaned of lime and free from staybolts and not over 3 ft. long. Smaller dimensions of plate scrap may be required by mutual agreement between buyer and seller. No piece is to weigh less than 10 lb.
>
> Heavy melting scrap may include structural shapes, bars and plates, steel castings, heavy chain, carbon tool steel, heavy forgings, forge butts and similar heavy material. This grade may also include new mashed pipe ends, original diameter 4 in. and over, thoroughly flattened, sheet bars, billets, blooms, rail ends, railroad steel scrap such as angles, splices, couplers, knuckles, short rails, draw bars, cut cast steel bolsters, coil and leaf springs (all coil springs to be ⅜ in. or larger in diameter).
>
> No needle or skeleton plate scrap, agricultural shapes, annealing pots, boiler tubes, grate bars, cast iron, malleable iron, or curly or unwieldy pieces will be accepted. The scrap must be free from dirt, excessive rust or scale, or foreign material of any kind. Alloy steel scrap may be excluded from these specifications by mutual agreement between buyer and seller.
>
> American Railway Association Specifications Nos. 7, 8, 9, 21, 24, 31, 36, and 44 will be accepted.

The provision for excluding alloy steel by mutual agreement between buyer and seller was held to be an unusually important step. The question was raised by H. R. DeGroat, A. M. Wood & Co., Philadelphia, who said a serious situation is facing the scrap market affecting sellers, shippers and users by reason of the mixture of alloy steel with a grade that is sold as turnings. He said this is especially true at centers of automobile production, such as Detroit, where chrome and alloy scrap is disposed of by contract or otherwise. He pointed out that this material is mixed with carbon steel and other grades, and that in most instances shippers and dealers are not aware of the fact. The condition was said to be due to the fact that the material is not segregated. The result of this practice, which had merely grown up in the trade and was not designed to be injurious, is that there are a great many rejections and reductions in prices, together with difficulty over sales agreements. Most blast furnaces and foundries do not want the mixture of these alloys, it was declared, because it spoils the runs from the furnace and the cupola. It was asserted that the trade is being flooded with chrome and alloy scrap.

The other changes made in the specifications were more in the nature of refinements than major revisions, although they were numerous in all grades. The specifications were adopted for an indefinite period, and it was disclosed that there are certain problems of a technical nature which require solution, notably the difficulties presented by chrome steel in scrap. The provision covering the latter problem, it was pointed out, will likely be superseded by one which it is hoped will mean complete segregation of the mixtures at the plants where they are purchased.

In addition to adopting the specifications, the conference adopted a standard form of purchase contract recommended by the National Association of Purchasing Agents and adopted under simplified practice procedure last fall.

The unification of specifications has been under way since 1923 when several sets of specifications were in common use, it was explained by H. C. Wickline, Union Steel Casting Co., Pittsburgh, who presented the report.

Revised Specifications Covering Iron and Steel Scrap

For Use by Blast Furnaces, Steel Plants, Foundries, Etc.

Scrap For Use in Blast Furnaces

A. Pipe Busheling Scrap.

Iron and steel pipe and flues (clean), bedstead tubing and similar material cut 8 in. and under in length, free from galvanized material and foreign metals.

B. Cast Iron Borings.

Clean cast iron borings free from badly corroded material, lumps, scale, other metals, dirt or foreign material of any kind.

C. Shoveling Turnings.

Clean, short, steel and wrought iron turnings, drillings or screw cuttings, free from stringy, bushy or tangled material, corroded or rusty lumps, excessive oil, scale, other metals, dirt or foreign material of any kind. Alloy steel scrap may be excluded by mutual agreement between buyer and seller.

D. Mixed Borings and Turnings.

Clean, short, steel and wrought iron turnings, drillings, screw cuttings and cast or malleable iron borings and drillings, free from stringy, bushy, tangled, corroded material, lumps, excessive oil, scale, other metals, dirt or foreign material of any kind. Alloy steel scrap may be excluded by mutual agreement between buyer and seller.

E. Corroded Borings and Turnings.

Corroded and lump borings, turnings and similar stock,

free from scale, other metals, dirt or foreign material of any kind. No dimension to exceed 9 in. Alloy steel scrap may be excluded by mutual agreement between buyer and seller.

F. Burnt Iron Scrap.

Old annealing boxes, stools and pots, grate bars and similar burnt iron. No dimension to exceed 9 in. except brake shoes which may be included. Alloy steel scrap may be excluded by mutual agreement between buyer and seller.

G. Mill Scale.

Iron oxide produced in rolling mill practice, from drop forge hammers or from a busheling mill squeezer. Should contain not less than 65 per cent metallic iron and must be reasonably free from dirt, grease and other foreign material. Scale from alloy steel scrap may be excluded by mutual agreement between buyer and seller.

H. Mill Cinder.

Cinder from puddling furnaces, heating furnaces and soaking pits. Should contain not less than 50 per cent iron and be reasonably free from dirt and other foreign material. Cinder from alloy steel scrap may be excluded by mutual agreement between buyer and seller.

Scrap For Use in Basic Open-Hearth Furnaces

A. No. 1 Heavy Melting Steel. (See revised classification in body of article.)

B. No. 2 Melting Steel.

Plate scrap such as car sides, automobile frame stock, tank and skelp crops, ⅛ in. and heavier, steel parts of agricultural implements, wagons, buggies and scrapped automobiles, auto and buggy springs cut apart, rods and bars, ½ in. and heavier, punchings, ¼ in. and over in thickness, heavy clippings, new unmashed pipe ends, under 4 in. in diameter, horse shoes and similar material. Car sides and all light plates to be sheared 15 in. x 15 in or under, and all tires and light rods to be 12 in. and under in length. Any curved or twisted pieces must be sheared into such shape that they will lie flat in a charging box and not tangle in handling with a magnet, all to be free from cast iron, malleable iron, burnt scrap, dirt or foreign material of any kind. Maximum size, 15 in. wide by 3 ft. long. Alloy steel scrap may be excluded by mutual agreement between buyer and seller. Within the limits of this specification, American Railway Association classification No. 25 will be accepted.

C. Heavy Shoveling Steel Scrap.

Heavy, clean wrought iron and steel scrap, ¼ in. and over in thickness, not exceeding 8 in. in breadth or length and no piece to be less than the equivalent of ½ in. square, 3 in. long. May include clean horseshoes, railroad spikes, bolts, nuts, tie plates, etc., boiler, bridge and structural punchings and clippings, small bar and shafting crop ends and other similar material. To contain no burnt material, cast or malleable scrap, cut pipe and tank, skeleton stock, badly corroded material, or any twisted or tangled scrap. Must be free from foreign metals of all kinds, from galvanized, painted, enameled or other coated stock, and from dirt and rubbish of all kinds. Must be loaded in separate cars from other grades of scrap. Alloy steel scrap may be excluded from these specifications by mutual agreement between the buyer and seller. American Railway Association classification No. 58 will be acceptable on this specification.

D. Short Shoveling Flashings.

Flashings or trimmings from iron or steel forgings. To be 10 in. or under in length, suitable for hand shoveling, to include no tangled or twisted material. Alloy steel scrap may be excluded by mutual agreement between buyer and seller.

E. Long Flashings.

Flashings or trimmings from iron or steel forgings, which have been strictly separated to a minimum length of 20 in. and not to exceed a maximum of 36 in. There must be a thickness in some section of each of these flashings of not less than $\frac{3}{16}$ in. Alloy steel scrap may be excluded by mutual agreement between buyer and seller.

F. Mixed Flashings.

Flashings or trimmings from iron or steel forgings, not over 36 in. in length. Alloy steel scrap may be excluded by mutual agreement between buyer and seller.

G. No. 1 Busheling.

Clean iron and soft steel pipes and flues (clean), tank, cut hoops and bands No. 12 gage and heavier, steel plate punchings and clippings, soft steel and iron forgings and flashings; no dimension over 8 in. To be free from burnt material, hard steel, cast, malleable and galvanized or coated stock of any kind. American Railway Association specifications Nos. 14 and 58 will be accepted.

H. No. 2 Busheling.

Cut hoops, cotton ties, sheet and similar light material, No. 22 gage and heavier; no dimension over 8 in. To be free from hard steel, cast, malleable and galvanized or coated material of any kind.

I. No. 1 Selected Rail Scrap.

Standard section tee and guard rails, 40 lb. and heavier per yd., not less than 36 in. long, straight lengths, to be free from frog and switch rails not cut apart, and contain no manganese steel scrap or cast welds or attachments of any kind, concrete, dirt or foreign material of any kind. American Railway Association specifications Nos. 33, 34 and 35 will be accepted.

J. No. 1 Selected Shearing Scrap.

Angles from 2 in. up to 6 in., structural shapes in single members from 4 in. up to 9 in., bars ½ in. and over up to 4 in. in diameter, and flats ½ in. to 2 in. thick and from 1 in. to 10 in. in width. To be in straight lengths and free from dirt and foreign material of any kind. Long length girder rails free from cast welds and attachments may be included by mutual agreement between buyer and seller.

K. Axle Turnings.

Heavy, short first cut turnings from wrought iron and steel railroad axles or heavy forgings, and rail chips, to weigh not less than 75 lb. per cu. ft., free from dirt or other foreign material of any kind. Alloy steel scrap may be excluded by mutual agreement between buyer and seller.

L. No. 1 Machine Shop Turnings.

New, clean steel or wrought iron turnings, free from lumps, badly tangled or matted material, cast iron borings, other metals, excessive oil, dirt or foreign material of any kind. Badly rusted or corroded stock will not be accepted.

M. No. 2 Machine Shop Turnings.

New, clean steel or wrought iron turnings, curly, bushy stock, may contain tangled material, but must be free from badly rusted, lumpy and corroded stock. To contain no cast iron borings, other metals, excessive oil, dirt or foreign material of any kind. American Railway Association specifications Nos. 50 and 51 will be accepted.

N. Cast Iron Borings.

New, clean cast iron borings and drillings, free from steel turnings and from badly corroded or rusty material, lumps, oil, scale, other metals, dirt or foreign material of any kind.

O. Hydraulically Compressed Sheet Scrap.

New, black steel sheet clippings, shearings, skeleton stamping scrap, side and end sheet and tin mill scrap, hydraulically compressed into compact, rectangular packages not to exceed 20 in. longest dimension, weighing not less than 75 lb. per cu. ft.; must be clean and free from excessive rust, paint or protective coating of any kind. No detinned scrap, electrical sheets or material over 0.50 per cent silicon will be accepted. Further limitation of silicon content may be made by mutual agreement between buyer and seller.

P. Baled Sheet Scrap.

New, black steel sheet clippings, shearings, skeleton stamping scrap, side and end sheet and tin mill scrap, machine baled into rectangular packages, tied with wire or bands, or sufficiently compact not to come apart in handling with a magnet, not over 20 in. longest dimension, weighing not less than 45 lb. per cu. ft.; must be clean and free from paint or protective coating of any kind, or excessive rust. No detinned scrap, electrical sheets or material over 0.50 per cent silicon will be accepted. Further limitation of silicon content may be made by mutual agreement between buyer and seller.

Q. Hand-bundled Sheet Scrap.

New, black steel sheet clippings, shearings, skeleton stamping scrap, side and end sheet and tin mill scrap, securely tied with not less than two wires or bands into packages not over 18 in. x 18 in. x 3 ft., weighing not over 125 lb., to be bundled in such a manner that packages will not come apart in handling with a magnet; must be clean and free from paint or protective coating of any kind, or excessive rust. No detinned scrap, electrical sheets or material over 0.50 per cent silicon will be accepted. Further limitation of silicon content may be made by mutual agreement between buyer and seller.

R. Loose Sheet Clippings.

New, black steel sheet clippings, shearings and stampings, $\frac{3}{16}$ in. and lighter, free from paint or protective coating of any kind, or excessive rust; to be not over 18 in. wide or long or if edge trimmings or shearings to be not over 12 in. x 5 ft. long. No detinned scrap, electrical sheets or material over 0.50 per cent silicon will be accepted. Further limitation of silicon content may be made by mutual agreement between buyer and seller.

S. Galvanized or Coated Sheet Scrap.

New, clean steel sheet scrap, composed in whole or in part of material having a coating of zinc, paint or protective material. Must be clearly specified as galvanized or coated scrap and be classified as above under O, P, Q or R, according to the manner in which it is prepared for shipment. No material over 0.50 per cent silicon will be accepted.

T. Detinned Sheet Scrap.

Sheet steel clippings and shearings, originally covered with a protective coating of tin or lead and tin, but from which such foreign metals have been removed. Must be clean, contain no material over 0.50 per cent silicon and be

(*Continued on page* 455)

Quieter Season in European Iron

Semi-Finished Steel on Continent Is Firm—British Shipbuilding Decline Severe

(By Cable)

LONDON, ENGLAND, Feb. 8.

A LULL has followed the recent heavy buying of Cleveland pig iron, but makers are well booked for the present and with the limited output are able to maintain a firm attitude. Steel works' producers may need to increase production to supply their own requirements. Hematite is scarce and prices firm. Foreign ore is dull, with Bilbao Rubio at 21s. 3d. to 21s. 6d., c.i.f. Tees.

Sentiment is better in finished iron and steel as a result of improved domestic inquiry and moderate export activity. New Zealand is expected to place orders for railroad material shortly.

The tin plate market is still rather dull, although pooling by makers is now in effect. Australian, Continental and Far Eastern buyers, however, are showing some interest. Galvanized sheets recently eased off, but have since become steady on better Indian demand. Black sheets are quiet with only a moderate export inquiry.

The Continental situation is complex. Semi-finished material is decidedly firm, but the re-entry to the market of Charleroi producers and French works is tending to weaken sentiment. In German Upper Silesia only four of 15 furnaces are in blast. German shipyards are slightly more active.

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British Business Improves but Possible Coal Strike Makes Future Uncertain

LONDON, ENGLAND, Jan. 21.—With the first month of the new year drawing to a close there is a marked improvement in the general condition of the iron and steel markets, offset somewhat by the deepening shadow of trouble in the coal fields within the next few months. Nevertheless there has been a decided revival in business and since the holidays there has been a change in pig iron from a buyers' to a sellers' market. Dearer fuel has affected iron prices and consumers, principally domestic, realizing that values were tending upward, have been seeking supplies so that a considerable tonnage is going directly into consumption. While there is the prospect of more furnaces being blown in to meet this increased demand, makers are deterred by the high price of fuel. Since Christmas, when pig iron values increased for the first time in many months, the price of Cleveland foundry has risen 3s. 6d. a ton, the latest advance of 6d. occurring early this week. In the meantime one large producer has withdrawn from the market. Hematite also has advanced, but not so rapidly, there being no fixed minimum or extra for export, but satisfactory sales have been made to both domestic and foreign users. The floods on the Continent affected production but first reports of damage to plants seem to have been exaggerated, as most of the mills in the flooded area are in operation again. The Charleroi strike, which has forced a complete suspension of mills in that district since June, has ended, but many of the skilled workers have drifted to other sections so that it is expected to be some time before the Charleroi furnaces and mills are important factors again. In finished iron and steel the heavy mills have been booking more freely, particularly with domestic orders from fabricators and engineering companies, but export trade is still slow and new shipbuilding shows no sign of improvement.

Lloyds returns for the final quarter of last year show the severity of the decline in British shipbuilding. The tonnage under construction was the lowest since 1909, totaling only 885,013 tons. The total gross tonnage launched for the year was 1,079,998. The total merchant tonnage building in other countries, 1,184,532 tons, is about 13,000 tons less than at the end of September. The figures for the leading countries are: Italy, 309,578 tons; Germany, 234,145 tons; France, 167,256 tons; Holland, 108,894 tons, and the Untied States, 105,211. Italy for the first time since the re-

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.86 per £, as follows:

Durham coke, del'd..	£1	1½s.					$5.22		
Bilbao Rubio ore†...	1	1½					5.22		
Cleveland No. 1 fdy..	3	12½	and	£3	13s.*		17.62	and	$17.74*
Cleveland No. 3 fdy..	3	10	and	3	10½*		17.01	and	17.13*
Cleveland No. 4 fdy..	3	9	and	3	9½*		16.77	and	16.88*
Cleveland No. 4 forge	3	8	and	3	8½*		16.52	and	16.65*
Cleveland basic	3	10	and	3	10½*		17.01	and	17.13*
East Coast mixed....	3	17	to	4	0		18.71	to	19.44
East Coast hematite..	4	19					24.06		
Ferromanganese	15	10					75.33		
*Ferromanganese ...	15	5					74.12		
Rails, 60 lb. and up..	7	5	to	8	0		35.24	to	38.88
Billets	6	0	to	7	10		29.16	to	36.45
Sheets and tin plate, bars, Welsh	6	5					30.38		
Tin plates, base box..	0	19¼	to	0	19¾		4.68	to	4.80
							C. per Lb.		
Ship plates	7	2½	to	7	12½		1.54	to	1.65
Boiler plates	11	0	to	11	10		2.39	to	2.49
Tees	7	7½	to	7	17½		1.47	to	1.71
Channels	6	12½	to	7	2½		1.44	to	1.55
Beams	6	7½	to	6	17½		1.40	to	1.50
Round bars, ¾ to 3 in.	7	17½	to	8	7½		1.71	to	1.81
Steel hoops	10	10	and	11	0*		2.28	and	2.49*
Black sheets, 24 gage	11	5	to	11	10		2.35	to	2.49
Black sheets, Japanese specifications	14	15					3.19		
Galv. sheets, 24 gage.	16	0	to	16	5		3.47	to	3.52
Cold rolled steel strip, 20 gage	18	0					3.91		

*Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F.O.B. Channel Ports

Foundry pig iron:(a)								
Belgium	£3	2s.	to	£3	4s.	$15.06	to	$15.55
France	3	2	to	3	4	15.06	to	15.55
Luxemburg	3	2	to	3	4	15.06	to	15.55
Basic pig iron:(a)								
Belgium	3	0	to	3	2	14.58	to	15.06
France	3	0	to	3	2	14.58	to	15.06
Luxemburg	3	0	to	3	2	14.58	to	15.06
Coke	0	18				4.37		
Billets:								
Belgium (Nom.)...	4	15	to	4	16	23.08	to	23.33
France (Nom.)....	4	15	to	4	16	23.08	to	23.33
Merchant bars:						C. per Lb.		
Belgium	5	8½	to	5	10	1.19	to	1.21
Luxemburg	5	8½	to	5	10	1.19	to	1.21
France	5	8½	to	5	10	1.19	to	1.21
Joists (beams):								
Belgium	4	19	to	5	2½	1.09	to	1.12
Luxemburg	4	19	to	5	2½	1.09	to	1.12
France	4	19	to	5	2½	1.09	to	1.12
Angles:								
Belgium	5	2	to	5	4	1.12	to	1.15
⅛-in. plates:								
Belgium	5	19	to	6	3	1.31	to	1.34
Germany	6	2½	to	6	5	1.35	to	1.36
¼-in. ship plates:								
Belgium	5	11	to	5	12½	1.21	to	1.22
Luxemburg	5	11	to	5	12½	1.21	to	1.22
Sheets, heavy:								
Belgium	6	3	to	6	4	1.36	to	1.37
Germany	6	3	to	6	4	1.36	to	1.37

(a)Nominal.

ports have been made takes first place among shipbuilding countries abroad. During the fourth quarter 182,290 tons of shipping were begun abroad and 274,839 tons launched.

The total world tonnage in 1925 was 2,059,545 tons, a decrease of 137,360 tons, which is 1,377,013 tons below the highest pre-war record. The tonnage of vessels now under construction in all countries, which are to be fitted with internal combustion engines, totals 1,007,381 tons, while the tonnage of steam vessels under construction is 1,041,119 tons, showing the remarkable development which is taking place in the adoption of motor-driven vessels.

The tonnage of motor-driven ships under construction in Great Britain and Ireland at the end of December (229,481 tons) amounts to 51.6 per cent of the steam tonnage under construction, while in Denmark, Germany, Holland, Italy and Sweden the motor tonnage under construction greatly exceeds the steam tonnage, the combined totals for these five countries being 186,454 tons of steam-driven ships and 579,436 tons of motor-driven ships.

UNCERTAINTY IN BELGIUM

Charleroi Mills Resuming and Renewal of French Competition Expected—German Mills Active

ANTWERP, BELGIUM, Jan. 23.—The strike in the Charleroi district is definitely ended, following a suspension of operations for more than six months. Today two furnaces were blown in and in about a fortnight rolling mills are expected to be operating at close to normal production. The final compromise offer of the operators was rejected by a referendum vote of the miners, but only about one-third of the men voted. The companies then approached the men directly, stating the terms upon which work would be resumed if a sufficient number returned. The acceptance was large enough to represent an almost complete defeat of the unions.

While the Charleroi mills are returning to the market seeking tonnage, resumption, it is understood, is to be gradual, so that prices will not be seriously affected. The return of this capacity to activity, however, is being felt, as business is small despite the fact that mills have been endeavoring to maintain a semblance of strength in the market. A large number of works, however, have well-filled order books, so that the situation is not yet serious, but buyers are inclined as in the past few weeks to delay purchases as long as possible.

Foreign competition is changing gradually from France to Germany. French mills continue out of the market on a large number of products but German mills are becoming more strongly competitive, apparently being willing to make considerable concessions in prices to secure desirable, large orders. To offset the increased competition, however, there is evidently a greater demand from European markets and British buyers have been more active in the past week.

Pig Iron.—The market is firm with available supplies for prompt delivery extremely limited. As a result, prices have advanced both for domestic and export business. An additional factor of strength is the firmness of Luxemburg and Lorraine furnaces. No. 3 phosphoric foundry of 2.50 to 3.00 per cent silicon is quoted for export at 64s. to 65s. per metric ton ($15.80), f.o.b. Antwerp for March delivery or later. French sellers are quoting medium phosphorus foundry at about $17.70 per metric ton, f.o.b. Antwerp, with Belgian sellers out of the market temporarily. Belgian hematite is quoted at 410 fr. per metric ton ($18.60), f.o.b. Antwerp.

Semi-Finished Material.—Makers are heavily booked with business, and although there is a good volume of inquiry for billets and slabs, consumers are in most instances unwilling to meet the price ideas of the mills. While sales have been made at as low as £4 8s. to £4 9s. per metric ton ($21.38 to $21.87), f.o.b. Antwerp, the general level of the market is from £4 10s. to £4 12s. per metric ton (about $22.35). Sheet bar prices are firm at about £4 15s. ($23.10) per metric ton. This is an advance of nearly 2s. per ton in a fortnight. Blooms are weaker in the face of a smaller demand.

Finished Material.—Both domestic consumers and exporters have thus far successfully resisted the efforts of mills to advance prices. Makers are well booked with business, but current purchasing is small. The future of the market is rather uncertain in view of the return to activity of the Charleroi district mills, which will doubtless be seeking a sizable backlog of business with which to resume operations. In addition, Lorraine mills are expected to return to the market before long. Deliveries are delayed and prices are held rather firmly at present to £5 6s. to £5 7s. per metric ton ($25.75 to $26.00), f.o.b. Antwerp, on bars and angles. Both Luxemburg and French makers are offering no competition at present. Beams continue fairly firm with quotations unchanged at £4 18s. to £5 per metric ton (($23.80 to $24.30), f.o.b. Antwerp. Wire rods have been advanced £5 16s. per metric ton ($28.20) for export and about 600 fr. per metric ton ($27.25) for domestic consumption. Corrugated bars are quoted at £5 14s. ($27.70) per metric ton, f.o.b. Antwerp.

Sheets.—Prices are firm with a moderate demand. Light gage sheets are quoted at £8 6s. per metric ton ($40.35) f.o.b. Antwerp and medium gage at £7 6s. per metric ton ($35.45), f.o.b. Antwerp.

Japan Buys Rails, Pipe and Tin Plate of American Mills

NEW YORK, Feb. 9.—The current export market is quiet as far as new inquiries are concerned, but several tonnages on which American mills have been quoting to Japanese export houses have been settled. The South Manchuria Railway Co., reported last week as buying in the United States, awarded 40 miles of 80-lb. sections. The Nippon Oil Co., which has been securing prices on 27,750 base boxes of oil can tin plate, has awarded double the tonnage, 55,500 boxes, to a large Japanese exporter, the business being placed with the leading export interest. Another large inquiry from Japan that has been placed in the United States is 1,060,000 ft. of gas pipe for the Tokio Gas Co.

Pointed Disproof of Widely Published Claim of Disfavor for American Product

Some weeks ago a newspaper dispatch was printed widely in this country and abroad, claiming that the Japanese Government railroads had found American rails unsatisfactory. A Japanese inspector in a French rail mill was regarded, in some quarters, as responsible for the statement. Subsequently a new agency in Yokohama gave credence to the alleged investigation, which made the startling finding that the 140,000,000 tons of rails from the "American Carnegie" works, in different parts of the world and "hitherto regarded as the best" were found inferior in quality, "having been injured within several years of use and the English goods to be the best with a durability of over 40 years, being followed by the Russian, German and French goods in the order named."

The report in one form or another, though on the face of it hardly convincing in informed circles, was made so much of in Europe that Judge Elbert H. Gary, as president of the American Iron and Steel Institute, has issued the following statement:

Bessemer Rails Rolled 20 Years Ago Probable Basis of Canard

Notwithstanding that the recently published report from Tokio, criticizing the quality of American rails, has been materially modified, if not contradicted in substance, by a high official of the Japanese Government Railways, it is deemed appropriate by American manufacturers to make some observation concerning the subject matter.

The reports referred to related and were confined to certain rails made from Bessemer steel which were supplied eighteen or twenty years ago, when the Bessemer process was practically universal both in the United States and Europe. It is believed no complaints have been made at any time regarding the quality of American open-hearth rails, which have been furnished since the Bessemer process was abandoned for use in making rails.

Moreover the rails which were the subject of criticism were manufactured in 1907 or earlier and weighed 60 lb. per yard. Increasing traffic and heavier rolling stocks made it necessary to replace these rails with rails of heavier sections and rails weighing 90 to 130 lb. per yard or even more are now very generally used on American railroads.

Japan Still Buys American Rails

A large rail order was received from Japan early this month for open-hearth rails and numerous other orders have been received during the past two years.

Open-hearth rails of heavy weight, manufactured to specifications of recognized American engineering societies, have proved in actual use for many years in the United States and other countries to be superior to rails made by other processes. During the past two or three years more than half a million tons of American open-hearth rails have been exported to foreign countries.

ARGENTINE STEEL IMPORTS

Movement Higher in Bars, Wire, Pipe, Plates and Shapes—Lower in Rails and Rods

Imports of iron and steel products into Argentina increased during the first six months of 1925 over the corresponding period in 1924, according to a report from the Director-General of Statistics of the Argentine Republic. This increase is of special significance as it indicates that total iron and steel imports for the year may be larger than that recorded previously, as the imports of 1924 nearly equalled those of 1911, during which year, due to the heavy importation of railroad material, a record was set.

Increases were noted in the importation of steel ingots and bars, wire of various classes, plates and shapes, pig iron and pipe. A small decrease in the importation of galvanized steel is accounted for through the specialized use of this product. Galvanized sheets are used to form locust traps and the amount imported varies according to the Government purchases. Although imports of steel rails were somewhat lower than in 1924, the amount imported during the six months, 45,934 metric tons, is half of the 91,860 metric tons estimated to cover the replacement needs of the Argentine railroads.

The increases noted were sufficiently general to indicate a continuance of the general prosperity noted in 1924 and reflect, as well, a balancing against the large grain exports of last year. The demand for wire in Argentina has been a continuing one, with imports averaging around 80,000 metric tons. This wire is used primarily for fencing and the increased imports of this year indicate that a larger amount of land is being fenced.

The following tabulation gives a comparison covering the first six months of the past three years for the principal iron and steel imports:

	Imported in First Six Months of		
	1925	1924	1923
	(In Metric Tons)		
Iron and steel rods	29,810	46,659	22,170
Steel rails	45,934	65,060	42,128
Plates and shapes	106,705	88,285	66,991
Fence wire	51,932	42,696	35,564
Galvanized iron and steel	43,304	49,463	46,501
Pipe, in general	32,456	22,022	20,018
Steel bars and plates	5,067	3,355	1,925
Pig iron	5,975	5,023	3,706
Total of above	321,183	322,563	239,003

The most interesting item of export, aside from agricultural matters, was the shipment of 48,867 metric tons of scrap iron and steel. As a result of a law passed in 1915, forbidding the exportation of various metals, no iron and steel scrap was exported until after May 23, 1924, when the restriction was repealed. During the second half of 1924, 50,645 tons of scrap were exported. The exportation of 48,867 tons during the first half of 1925 indicates a continued decrease in the stocks of scrap held within the country.

Argentina stood fifth among the iron and steel customers of the United States in 1925, being exceeded by Canada, Cuba, Japan and Mexico. Shipments from the United States to Argentina during the whole of 1925, compared with 1924, included the following items:

	1925	1924	Per Cent Increase
	(Gross Tons		
Total iron and steel	87,296	55,388	57.6
Galvanized sheets	35,642	14,460	146.5
Barbed wire	10,038	10,267	2.3*
Tin plate	6,656	8,888	25.1*
Plain and galvanized wire	1,255	3,544	64.6*

*Decrease.

ITALY'S IMPORTS GROWING

Machinery Market Shows Large Expansion—United States Shared Well

Italian imports of machinery for the first nine months of 1925 exceeded the total for the entire year of 1924, both in tonnage and value, according to official statistics of that country, abstracted by Assistant Commercial Attaché A. A. Osborne, Rome. The United States has shared well in the increased activity of this market, along with Germany, France and Austria, supplying the Italian market with a greater tonnage during the first nine months of 1925 than during all of 1924. In the case of Great Britain, imports for this period of 1925 approximately equal in tonnage total imports for 1924.

Italy is steadily growing in importance as a market for American industrial machinery, absorbing a larger proportion of our total exports each year. In 1921 that country held twenty-ninth place among the world's markets for American machinery, and in 1924 the Italian market ranked nineteenth, with imports from the United States valued at $1,465,756. Figures for the first six months of 1925 show that industrial machinery valued at $1,859,347 was exported to Italy as against a total of $756,026 for the same period in 1924. According to official Italian statistics imports of "machinery, apparatus and parts" from the United States for the nine-months period rose from 1494 metric tons in 1923 to 3443 tons in 1924, an increase of 130 per cent, and increased again to 5325 tons in 1925, representing a gain of 55 per cent over the same period of the previous year. The estimated tonnage of the industrial machinery entering into these totals is not available.

The important competitors of the United States, namely, Germany, Great Britain and France, have also registered large gains in trade. Because of depression in the German domestic machinery market, that country has been making strenuous efforts to increase its trade with Italy and these efforts, aided by favorable geographical location and radical price concessions, have met with much success. Germany leads as the most important supplier of machinery to the Italian market, followed, in order of importance, by Great Britain, France and the United States.

Italy Taking More Machine Tools

Statistics covering imports of machine tools, weaving and spinning machinery, the only classes of industrial machinery for which figures are now available for the nine months' period, show that the United States is obtaining a good share of this growing market. Shipments of machine tools from the United States for this period in 1924 amounted to 164 metric tons as against 36 metric tons for the same period in 1923—an increase of 360 per cent. During the nine months period of 1925 this total amounted to 1076 tons, a gain in excess of 555 per cent. The latter increase is exceptional and is due largely to the placing of special orders. Similar satisfactory gains are also shown in imports of weaving and spinning machinery. The trade of Germany and Great Britain in these lines also show large gains, and the Italian statistics show a spectacular increase in imports of German spinning machinery.

Machine Tool Builders Association Plan for Separate Exposition

For the year 1926 the National Machine Tool Builders Association, according to a report of its committee on expositions, should not undertake a machine tool exposition of its own. For this year the recommendation to the association's membership is: "To confine their exhibiting to the fewest possible number of exhibits, preferably not exceeding two—one in the East and one in the West."

To reduce the cost of exhibits in 1927, the committee favors the development of a machine tool exhibit, to be operated by the association. The committee hopes to have data relating to costs, method of operation, and selection of time and place for such an exhibit ready for presentation to the membership at the spring convention. The answers to a question submitted to the membership by mail, asking how much space they would take, are said to indicate that the association can carry on a successful exposition of its own.

Foundry Equipment Association Elects Officers

The annual meeting of Foundry Equipment Manufacturers' Association was held at the Hotel Cleveland, Cleveland, Feb. 2. The following officers were elected for the ensuing year: President, S. T. Johnston, S. Obermayer Co., Chicago; vice-president, T. W. Pangborn, Pangborn Corporation, Hagerstown, Md.; secretary-treasurer, H. Cole Estep, Penton Publishing Co., Cleveland. T. W. Pangborn was reelected a director of the association for a three-year term. The next meeting of the association will be held at French Lick Springs, Ind., April 22 and 23.

Mechanical Engineers to Hold Regional Meeting at Providence

Under the leadership of Chairman Luther D. Burlingame, Brown & Sharpe Mfg. Co., a tentative program for the regional meeting of the American Society of Mechanical Engineers to be held in Providence from May 3 through May 6, has been prepared. Of the probable technical sessions there will be two on machine shop practice and one each on industrial power, wood industries, central station power, textiles, and education and training for the industries.

Meetings of Mechanical Engineers

Among meetings scheduled by different sections of the American Society of Mechanical Engineers are the following:

Atlanta, Feb. 18—At Chamber of Commerce at 8 p. m. Subject: Diesel Engine Today and Its Probable Future Development. Speaker: N. B. Henry, works manager Murray Co., Atlanta.

Metropolitan, Feb. 24—In Engineering Auditorium at 8.15 p. m. Subject: By-Product Processing of Coal. Speaker: H. W. Brooks.

New Britain, Feb. 18—Hotel Burritt. Dinner meeting at 6.30 p. m. Joint meeting of Hartford, Meriden and New Britain sections. Subject: Commercial Transportation with Lighter-Than-Air Craft. Speaker: Capt. Anton Heinen, Toms River, N. J.

Management Association Convention

The annual convention of the American Management Association will be held March 3, 4 and 5 at the Hotel Astor, New York. The main theme of the meeting will be "Stabilizing Business."

Employee investment in company securities and the budgeting of man-power are among the subjects on which committees will report. Other topics to be discussed during the convention include: principles underlying vacations; keeping down the cost of company publications; setting up a forecasting program; part-time education; the changing status of the worker, and the penalties of irregular business. Addresses on labor banks and insurance companies; building and loan associations, credit unions, employee bank savings plans and "how to help the employee work out his own insurance program," are also planned. Group meetings for production and operating executives will be a feature as heretofore. The topics for these meetings include: planning and maintaining a regular flow of work; the foreman's part in training; and rating of manual workers. Group meetings for financial office and sales executives will also be held.

To Demonstrate Electric Heat Treating at Purdue University

Demonstrations of the proper use of electric heat treating equipment, including the operation of electric furnaces, will be a feature of a State conference of manufacturers of electrical equipment and electrical power producers at Purdue University, Lafayette, Ind., on March 16, 17 and 18. Problems encountered in the electric heat treating of metals will be discussed. A special committee has been appointed to arrange for an exhibit which will portray the development of electric heat treating in the last few years. Prof. C. F. Harding, head of the School of Electrical Engineering at Purdue, and Prof. W. A. Knapp, in charge of the Engineering Extension Department, with a committee of electrical men, are preparing for the conference.

Cuban Exposition to Include Metals and Machinery

The metallurgical and mechanical, electric, construction, chemical, transportation and agricultural industries will be among those represented at the second official International Sample Fair to be held in Havana, Cuba, March 12-26. The fair is under the auspices of the Government of the Republic of Cuba.

The exposition will be made up of some 25 general sections, these subdivisions being according to industries. Within each section the exhibits will be grouped under "raw materials, machinery and implements," etc. Metals, hardware, foundry and forge shop equipment, machine tools, sheet metal working and other machinery will be shown in the metallurgical and mechanical section. Automobiles, trucks and railroad material are among the products in the transportation group, and iron and steel building and bridge and highway material will be in the construction division. Simultaneously with this exposition the first automobile show, the international exhibition of advertising posters and the international inventors' salon will be held. Communications to the committee in charge should be addressed to Lonja Del Comercio, Havana.

Urge Pooling of Sales and Production for German Machinery Industry

Amalgamation of machinery manufacturers to control sales and production was urged as an economic necessity at the annual meeting of the German Machinery Manufacturers' Association held in Berlin, Dec. 4, 1925, according to a report by American Trade Commissioner Theodore Pilger, Berlin. Director Carl Lange, manager of the association pointed out that the inflation of the mark has greatly increased the number of factories and their equipment and had materially decreased liquid working capital. Producing capacity, he said, is much larger than demand, both in domestic and foreign markets. The only salvation of the industry, in his opinion, is through a combination of interest (Interessengemeinschaft), in which a number of capable firms in a certain district amalgamate to control production and sales, although maintaining their independence so far as manufacturing is concerned. His remarks, in part, were as follows:

There already exist about 150 of such combinations in the machinery industry. On an average, each combination comprises about four machinery factories, making 600 works

in all, equivalent to about one-fifth of the entire German machine building industry. In one particular case, a whole association has combined its members into a manufacturing and sales union.

Specialization will reduce prices. For instance, by this means a particular paper machinery factory is making a saving of 23 per cent of the cost of wages. A printing machinery factory which formerly built 26 types of machines according to 119 models, is now producing only one model in four sizes and thereby increases its working capacity by 30 to 40 per cent, and the turnover is larger. Series production is only useful, if the factories in a particular line come to a common understanding. Automobiles are being produced here in series, but nevertheless, for the limited German market, there still exist dozens of automobile factories with more than 100 models. Standardization must be continued on a large scale. First rate quality goods must be produced.

The assistance of other industries, of the banks and the State is necessary. The iron trust must be welcomed, as it tends to reduce raw material prices.

The association comprises 3000 members, equivalent to 93 per cent of the total number of German machinery and apparatus builders. The membership employs about 750,000 workmen.

H. M. Byllesby Memorial Research Fellowships in Engineering

BETHLEHEM, PA., Feb. 8.—The announcement by Lehigh University, in Bethlehem, Pa., of two new research fellowships in engineering brings to light an interesting example of the activities of public service industries in research. The new fellowships were founded by an endowment fund created by Mrs. Henry M. Byllesby, widow of the late president of the Byllesby Engineering and Management Corporation, who received his degree in mechanical engineering from Lehigh. Although the subjects to be investigated under the fellowships may be proposed by the president of the Byllesby Corporation, the funds are to be administered and the work directed by the Institute of Research of Lehigh University. In common with all other activities of the institute, the work will follow lines of pure research and the results will be immediately available to the engineering profession.

The two Henry Marison Byllesby Memorial research fellowships will be awarded for a period of two academic years, with an annual stipend of $750 and freedom from university fees. Half of the time of the fellows must be devoted to research work on some problem in electrical, mechanical or hydraulic engineering, the other half to graduate study. Applications or requests for information should be addressed to President Charles Russ Richards of Lehigh University.

World Steel Statistics for 1924

The National Federation of Iron and Steel Manufacturers, Caxton House, Tothill Street, Westminster, London, has just issued its 1924 edition of "Statistics of the Iron and Steel Industry." The book contains 102 pages and covers in great detail data on the output of all grades of iron and steel, iron ore, coal, coke, and the imports and exports of Great Britain, United States, France, Germany, Belgium, Luxemburg, Sweden, Italy, Spain, Poland, Canada, India and Australia. At the end of the book is a summary of production of pig iron and steel for the chief producing countries of the world from 1913 to 1924. The edition can be obtained at a cost of 5s 6d, postage free.

Engineers and Architects Needed for Government Building Program

WASHINGTON, Feb. 6.—The United States Civil Service Commission has launched a campaign to recruit 200 engineers and architects needed in executing the extensive public building program provided in bills now pending before the House and Senate. The bills carry $165,000,000 for public buildings, distributed as follows: For structures in Washington, $50,000,000; for post offices and other Federal buildings throughout the United States, $100,000,000; to complete the unfinished portion of a building program ordered in 1913, $15,000,000.

President Coolidge said in an address before the Business Organization of the Government on Jan. 30 that the saving in rents resulting from this expenditure would make it an actual economy.

For this work the Civil Service Commission has announced that it will receive applications until April 30 for positions of architects and engineers with their associates and assistants. The first rating of papers will begin on March 15. Entrance salaries range from $2,400 to $3,800 a year. Higher salaried positions are filled through promotion. Full information and application blanks may be obtained from the Civil Service Commission, Washington, or from the Secretary of the United States Civil Service Board at the post office or custom house in any city.

The British Industries Fair

Official invitations to the British Industries Fair have been sent out by the British Government to 50,000 of the most important firms in the world. British consulates have been authorized to issue official invitation cards, carrying with them the right to receive British passport visas free of charge. The fair takes place simultaneously in London and Birmingham, from Feb. 15 to Feb. 26, 1926.

The Birmingham section covers general machinery, lighting plants, cooking stoves and appliances, motorcycles and cycles, saddlery and harness, hardware, metals of all descriptions and kindred trades.

The London section covers cutlery, silver and plated goods, jewelry and watches, scientific instruments, wireless apparatus, musical instruments and other products.

Pacific Foreign Trade Council

William Pigott, vice-president Pacific Coast Steel Co., Seattle, and president of the Pacific Foreign Trade Council, is making plans for the fourth annual convention of that body to be held in San Francisco, March 4, 5 and 6. It is expected that about 500 delegates representing various industries on the Pacific Coast will be in attendance at the convention.

Sesqui-Centennial Exposition Opens June 1

The Sesqui-Centennial International Exposition to be held at Philadelphia will open June 1, 1926, as originally planned. Unanimous approval of holding the exposition this year instead of in 1927 was given by the National Advisory Commission, representing 34 States, at a recent meeting in Philadelphia. Immediate construction will be started on the remaining contemplated buildings, consisting of the Palaces of Machinery, Mines, Metallurgy and Transportation, and an auditorium seating 20,000.

Concrete Reinforcing Steel Institute Meets in March

A symposium on unusual reinforced concrete construction during 1925 will be a feature of second annual meeting of the Concrete Reinforcing Steel Institute, to be held March 10 and 11 at the Hotel Traymore, Atlantic City, N. J.

Prospects for 1926 will be discussed by T. S. Holden, of the F. W. Dodge Corporation, New York, at the afternoon meeting, March 10. At the same session, W. Chattin Wetherill, director, metals utilization, United States Department of Commerce, will speak on "'Tis Time to Creep in Close About the Fire." The annual dinner is planned for the evening of March 10, and a golf tournament has been arranged for the afternoon of March 11. Hotel arrangements may be made through M. A. Beeman, secretary of the Institute, 160 North La Salle Street, Chicago.

Mr. Campbell Sees Good First Half

Expects Improvement in Business in February —Preliminary Report Shows Earnings of $18,000,000 for Youngstown Company in 1925

Following a directors' meeting last week of the Youngstown Sheet & Tube Co., President James A. Campbell expressed the opinion that business will be satisfactory for the steel industry during the first six months of the year. While specifications were somewhat below expectations during January and there has been considerable price resistance on the part of buyers, nevertheless Mr. Campbell said the price structure is firm, that the current market is being well maintained for the most part, and he believes business will become better in February. He reiterated his confidence in the outlook for the year, as voiced several weeks previously.

Preliminary figures indicate that the company earned last year, after all charges but before interest, about $18,000,000. It paid $4,000,000 in dividends and added $8,000,000 to surplus. It closed the year in strong cash position, with $14,000,000 in cash and Government securities. Net earnings from 1925 operations will be upward of $12 per share of outstanding common stock, after all charges.

Directors declared for the first quarter the regular dividends of $1 per share on common stock and $1.75 on preferred, both payable March 31 on stock of record March 15.

As shown by its balance sheet, the company has a gross investment of $260,000,000, whereas its actual investment is probably nearer $300,000,000, as its valuations in both manufacturing properties and raw material reserves are regarded as very conservative. On the basis of its balance sheet valuation, its earnings in 1925 were equal to 7 per cent and to 6 per cent on estimated value, sustaining the contention of some manufacturers that the earnings of large steel companies are only moderate, even in so-called good years.

More Than 50,000 Tons of Steel in Inland River Craft

Growing use of the inland waterways as a means of cutting freight charges on steel and other bulk commodities is reflected in the barge launchings of last year by builders supplying the requirements of inland shippers. A canvass of the leading builders in the Central West shows that 261 barges, taking a total of 52,885 tons of steel, slid off the ways last year. In addition, there were a number of other kind of river craft that took a total of 825 tons of steel, and one company engaged in building boats and barges, which built no barges last year, took about 2000 tons of plates and angles, which would make a total of 55,710 tons of steel that found its way into consumption directly in the shape of new river craft or in the maintenance of existing barges and tow boats.

The great bulk of the barge construction was in the Pittsburgh district. The Dravo Contracting Co. had a total of 85 hulls launched and delivered, including 77 barges, 1 mixer boat, 2 tow boats and 1 tow boat hull, 2 derrick boats, 1 quarterboat hull, 1 oil barge and 7 caisson units. The steel used amounted to 18,115 tons. The American Bridge Co. launched 85 barges last year, taking 15,000 tons of steel; the Jones & Laughlin Steel Corporation 51, taking 7100 tons; the Riter-Conley Co. 19, which took 8000 tons; the Midland Barge Co., Midland, Pa., 13, taking 3600 tons; the Nashville Bridge Co., 10, requiring 1160 tons; while the Dubuque Boat & Boiler Works, Dubuque, Iowa, used 600 tons of steel in boat and barge building, the Charles Ward Engineering Works, Charleston, W. Va., 135 tons for one barge, and the Howard Shipyards & Dock Co., Jeffersonville, Ind., approximately 2000 tons of rolled steel.

Last year was a good year, but present indications are that this year will be even better. This year's awards include 25 barges for the Carnegie Steel Co., calling for 4000 tons, this being the first lot of a total of 70 as well as 3 tow boats that have been authorized. There are 10 barges calling for about 5000 tons for the Inland Waterways Corporation (Federal Barge Line), and the Wheeling Steel Corporation has just placed 5 barges for which 600 tons of steel will be required. The American Bridge Co. will build 6 barges for the Barrett Barge Line, calling for 1800 tons of steel. Barge building is a use for steel that has assumed respectable proportions without much stir and just as wooden cars are passing off the railroads, so wooden barges appear to be giving way to steel on the inland rivers.

Manning Company Acquires Beaman & Smith Line

Manning, Maxwell & Moore, Inc., 100 East Forty-second Street, New York, has acquired the patterns, patents and good will of the Beaman & Smith Co., Providence, R. I., manufacturer of special purpose and standard machines for boring and milling. The machines will be manufactured at the Putnam Machine Works, Fitchburg, Mass., under the name of Beaman & Smith. The line is especially adapted to use in the automotive, pump, air compressor, electric motor and steam turbine industries. The plan and equipment of the Beaman & Smith Co. had previously been sold to other parties.

Over $2,000,000 Distributed by Corporation in Pensions

The fifteenth annual report of United States Steel and Carnegie Pension Fund shows that in the year 1925 the sum of $2,068,653 was distributed as pensions among retired employees of the United States Steel Corporation and its subsidiary companies. The Carnegie Steel Co. was first among the subsidiaries in the amount paid to retired employees, the sum being $473,571. Some of the pension disbursements of other large subsidiaries were: American Steel & Wire Co., $433,303; American Sheet & Tin Plate Co., $291,775; National Tube Co., $205,967; H. C. Frick Coke Co., $167,235; American Bridge Co., $113,861; Illinois Steel Co., $105,796; Oliver Iron Mining Co., $98,852; Bessemer & Lake Erie Railroad Co., $30,674, and Tennessee Coal, Iron & Railroad Co., $28,460.

There were 1122 employees added to the pension roll during 1925 and 516 were removed by death. At the close of the year there were 5084 on the pension roll. The average age of the 1122 employees retired in 1925 was 62.7 years; their average period of service was 31.35 years, and the average monthly pension, $43.20. The total amount paid in pensions since the inauguration of the pension plan on Jan. 1, 1911, is $13,295,809.

The beneficiaries of the pension fund make no contribution to it. The income for it is derived from a fund created jointly by Andrew Carnegie and the United States Steel Corporation. The latter provides also whatever additional moneys may be required in the administration of the pension plan. The pension fund applies to all employees of the United States Steel Corporation and its subsidiary companies, numbering approximately 250,000.

Kansas City Steel Corporation Lets Contract for Construction of Works

The Kansas City Steel Corporation, recently organized to remove the plant, buildings and equipment of the Cromwell Steel Mills, Lorain, Ohio, to Kansas City for reconstruction, has awarded a contract for the dismantling, crating, loading, unloading and re-erecting to the Peeble-Meehan Co., Ashland, Ky. The plant, when rebuilt with additions, will comprise the following: an open-hearth building, 130 x 342 ft.; a stripper and furnace building, 62 x 228 ft.; a blooming mill building, 55 x 400 ft.; a finishing mill building, 65 ft. x 280 ft., and office building, 50 x 100 ft.

Equipment will comprise four 100-ton open-hearth furnaces with a total annual capacity of 250,000 tons;

a 30-in. blooming and finishing mill to roll billets and structural shapes; and a 12-in finishing mill to produce small merchant and reinforcing bars, bands and structural shapes. There will also be yard structures, plant tracks, three main line railroad switch connections, a switching locomotive, a locomotive crane, a scrap yard, water lines, and miscellaneous items, all covering a tract of 50 acres.

The rebuilding will be under the guidance of H. A. Brassert & Co., consulting engineers, Chicago. It is estimated that the buildings will be completed and one open-hearth furnace will be put into operation by July 1. Included in the operating organization will be C. A. Kafer, electrical engineer and superintendent of the former Cromwell mills, and D. C. Hayne, former chief engineer Kansas City Gas Co. The corporation is organized under the laws of Delaware with $4,500,000 capital stock.

Discredit Report of New By-Product Coke Plant in Connellsville District

UNIONTOWN, PA., Feb. 6.—Report that a by-product coke plant to produce 1000 tons of coke daily was to be built at Morrell, just south of Connellsville, Pa., finds neither confirmation nor credence in this district, although the report had local financial interests as participating in the negotiations. The suggestion is not credited because the Semet-Solvay plant at Dunbar, Pa., not far from the proposed site, which has been idle for more than two years, is believed to be available at a bargain price and near the plant are several thousand acres of Freeport coal already opened up. It is hard to figure why a new plant should be built and more coal opened up with the Dunbar plant available. Doubt about the project also arises in the absence of a local market for the gas and the fact that straight Freeport coal does not make a good coke.

Supplementary Compensation to General Electric Employees

Supplementary compensation, amounting to $1,367,426, was paid in February by the General Electric Co., Schenectady, N. Y., to 30,813 employees of its plants and offices who have been with the company for five years or more. The sum paid each individual represents 5 per cent of his earnings for the six months ended Dec. 31, 1925. Payments were made in G-E Employees' Securities Corporation bonds or cash as the employees desired. Both the amount paid and the number of employees benefiting by this plan exceed those of June, 1925.

Shipbuilding Company Sues Government

The Bethlehem Shipbuilding Corporation and its subsidiary companies have begun suit in the United States District Court in Philadelphia against the United States Shipping Board and the Emergency Fleet Corporation for the recovery of $9,095,793 alleged to be due the shipbuilding company on a $25,000,000 ship contract undertaken during the war. This action is somewhat in the nature of a counterclaim to the $11,000,000 accounting suit filed by the Government against the shipbuilding company last April. The Government claims that the shipbuilding company was overpaid.

Record Shipments by Trumbull in 1925

The Trumbull Steel Co., Warren, Ohio, shipped 440,632 tons of finished steel in 1925, establishing a new yearly record. Shipments represented a sales value of $30,998,900. The payroll was $7,781,471 in 1925, while the January, 1926, payroll was $700,000. January shipments reached 43,192 tons, while strip steel production was the largest for any single month in the company's history. Steel ingot output in January was 53,000 tons, against 42,000 tons in December, 1925. The company has contracts for three months ahead and specifications insuring capacity production for six weeks, President Harrington stated. The company has about 4500 active customers. Jonathan Warner, former president, has repaid to the company $1,750,000, representing securities and cash returned by him. The amount which it is claimed he still owes the company is $800,000. From the 1925 operations, the company reports a net profit of $1,575,570, after deductions for depreciation, interest expense and other charges. The depreciation charge last year totaled $840,000, at the rate of $70,000 per month. Current assets of $9,105,487 compare with current liabilities of $2,203,792, while the gross assets total $48,825,449, including $4,390,494 in merchandise inventory and $35,079,749, the appraised value of plant and equipment. The company employs upward of 4500 men.

Seattle Protests Against Charge for Unloading Steel from Ships

The Seattle Chamber of Commerce has made a protest to the international steamship lines against the proposal of those lines to make a handling charge of 40c. per ton for unloading steel from the boats into open cars brought alongside them. It is contended that the charge is not justified because no additional service is given, either by the boats or the terminal companies, and also that it would be discrimination against Seattle and in favor of other ports, where no such charge is made.

Steel Companies Share in Refunds for War Amortization

WASHINGTON, Feb. 9.—Many iron and steel and machinery companies are included in a list which shared in the deductions for war amortization, as shown by the majority report of a special Senate committee which is conducting an inquiry concerning the Bureau of Internal Revenue. The total deductions, exclusive of those based on the solicitor's ruling, exceed $100,000,000. The largest refund shown in the committee's report was that of $27,926,412, made to the United States Steel Corporation. Among the others were the following:

The Lukens Steel Co., Coatesville, Pa., $2,418,142; Westinghouse Air Brake Co., Wilmerding, Pa., $1,387,799; Republic Iron & Steel Co., Youngstown, $3,167,080; McKinney Steel Co., Cleveland, $1,171,431; Labelle Iron Works, Steubenville, Ohio, $1,010,144; Koppers Co., Pittsburgh, $2,254,133; Jones & Laughlin Steel Corporation, Pittsburgh, $5,752,758; International Harvester Co., Chicago, $2,130,215; General Electric Co., Schenectady, N. Y., $1,187,360; Crucible Steel Co. of America, Pittsburgh, $8,912,879; Colorado Fuel & Iron Co., Denver, $2,594,109; Central Steel Co., Massillon, Ohio, $1,399,219; Baldwin Locomotive Works, Philadelphia, $2,990,806; The Babcock & Wilcox Co., New York, $2,049,072; American Rolling Mill Co., Middletown, Ohio, $1,470,210; American Locomotive Co., New York, $1,069,022.

Steel Barrel Making Capacity 44 Per Cent Employed

Monthly figures of the Steel Barrel Manufacturers Institute, Bulkley Building, Cleveland, show that, as an average for the year 1925, production was about 44 per cent of capacity of the members of the institute. Membership represents approximately 75 to 80 per cent of the productive capacity of the industry. Monthly figures showing percentage of capacity represented in output follow:

January	39	May	47	September	42
February	38	June	44	October	51
March	45	July	41	November	45
April	52	August	39	December	41

Faster Air Mail Service to Seattle

An air mail service is to be installed in the spring that will make the run between Seattle and New York in about 42 hr., the present running time being about 70 hr. When the new service is inaugurated, mail from Seattle to San Francisco will be delivered in 16 hr.

Trends in Steel Rails of Different Weights

Production Since 1900 Shows These Rates of Consumption

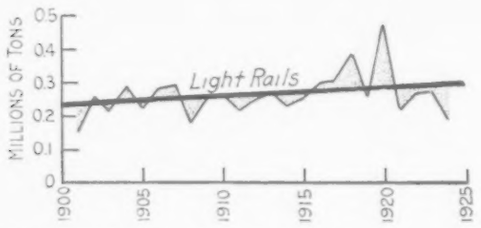
Light Rails	2,900 Tons Increase Per Year
45 to 85 lb. Rails (Up to 1914)	91,500 Tons Decrease Per Year
50 to 85 lb. Rails (1914 to 1925)	34,500 Tons Decrease Per Year
85 lb. and Heavier Rails (Up to 1914)	123,000 Tons Increase Per Year
85 lb. and Heavier Rails (1914 to 1925)	53,400 Tons Increase Per Year
85 lb. to 100 lb. Rails (1914 to 1925)	10,800 Tons Decrease Per Year
100 lb. and Heavier Rails (1914 to 1925)	64,000 Tons Increase Per Year

PRODUCTION of light rails, including rails rerolled from rails, shows a low rate of increase year by year, the rate of increase averaging 2900 tons per year. The trend line is shown in an accompanying illustration.

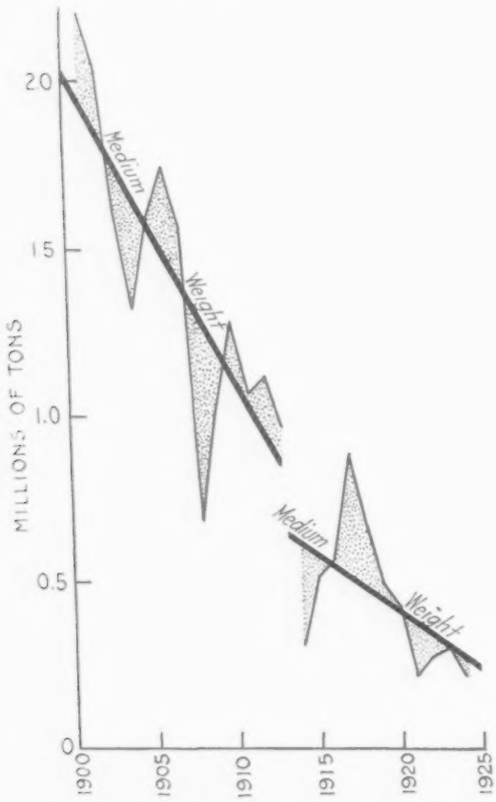
The diminishing importance of medium weight rails is also shown. These rails range in weight from 45 and 50 lb. per yard to 85 lb. (Up to 1913 the range was 45 to 85 and since then 50 to 85 lb.) The slant line for the 13 years to 1914 shows that production, and therefore consumption, was dropping off at the rate of 91,500 tons per annum. However, for the later period, the annual decrease amounts to 34,500 tons. If slump in demand for this weight of rails kept up at the same rate, medium weight rails would practically disappear by 1932.

Heavier rails up to the year of the war increased at the rate of 123,000 tons per year. Since then, production figures are available for rails of 85 to 100 lb. section and also of 100 lb. and heavier. The rate of production of the 85 to 100-lb. rails in the last 11 years has dropped off at an annual rate of 10,800 tons, but the heaviest rails have meanwhile shown an annual rate of increase of 64,000 tons. The annual increased rate for both types of heavy rails combined is since 1923 smaller than in the years prior to 1914. This rate is 53,400 tons against the 123,000 tons annually added on the average in the earlier period.

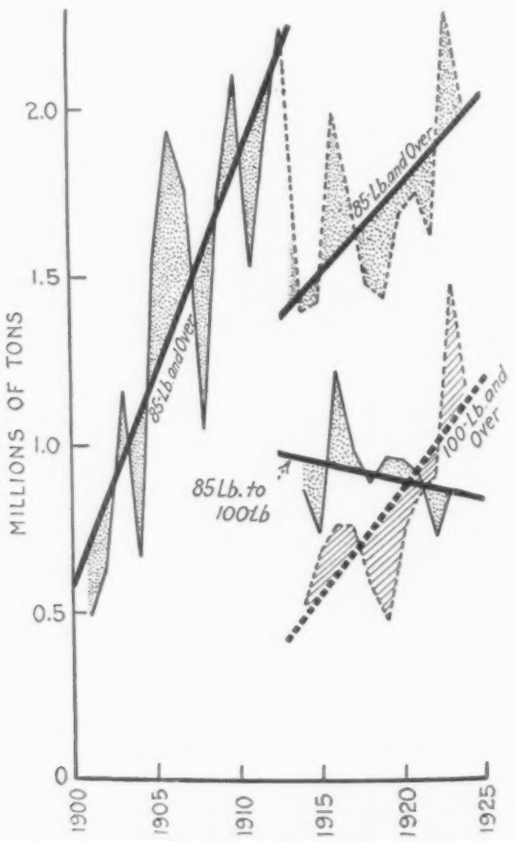
The figures of production are those of the American Iron and Steel Institute. A corresponding study of the consumption trend of all rails, taking into account both imports and exports, show that consumption in the last 11 years has been increasing at a rate of 27,800 tons per annum.



Consumption of Light Rails Is Increasing at Rate of Only 2900 Tons per Annum. Theoretical needs appear to be about 305,000 tons for 1926



Consumption of Rails of 45 to 85 Lb. per Yard Decreased in the 13 Years Prior to 1914 at an Annual Rate of 91,500 Tons. In the years since, the diminishing consumption has slowed to a rate of 34,500 tons



Consumption of Rails 85 Lb. and Heavier Was at an Annual Rate of Increase of 123,000 Tons up to 1914. Since then it has been at a rate of 53,400 tons. However, rails of 85 to 100 lb. section have shown a decreasing consumption of 10,800 tons per annum, while the rails 100 lb. and heavier have been in increasing demand at the annual rate of 64,000 tons

In This Issue

Specifications for No. 1 heavy melting scrap revised.—Variations permitted in size of heavy plate scrap; other grades also changed; new clause permits exclusion of alloy scrap if purchaser desires.—Page 411.

Japanese criticism of American rails based on 20-year-old Bessemer steel.—Iron and Steel Institute head points out unfairness of comparison between 60-lb. Bessemer rails and 90-130-lb. open-hearth rails, with present-day heavy rolling stock.—Page 414.

Boy Scouts stimulate interest in the foundry among boys.—Issue educational pamphlets, award merit badges for passing examination—more than 100 boys passed successfully last year.—Page 399.

American Brass Co. develops new type of monorail.—Ordinary steel I-beams used, two steel angles riveted to it to permit taper of angle corresponding with standard flange angle of beam; saves time for repairs.—Page 400.

Practically all increased demand for rails comes in weights over 100 lb.—Light rail demand increasing slowly, below 85-lb. declining rapidly, below 100 but above 85 moderate decline, above 100 lb. 64,000-ton annual increase.—Page 420.

Compensating electric heat-treating furnace said to reclaim 50 per cent of heat in finished work.—Cold work entering furnace passes hot work coming out and absorbs heat; more uniform quality hoped for.—Page 401.

Daily rate of steel ingot output in January 4½ per cent above December.—Total for month 4,153,545 tons, close to 1925 peak.—Page 423.

Reduction in surtaxes promised by new tax law should stimulate new enterprises.—Less likelihood of having large part of profits in good year go to government instead of offsetting losses in initial years.—Page 428.

Use of reinforcing bars has increased about 180 per cent in last 15 years.—Structural steel, during the same period, has gained only about 50 per cent.—Page 427.

New alloy steel developed for use in making type.—Soft enough to mold readily, responds to case hardening without cracked edges, is claim.—Page 424.

European system of taxing public and industries to provide old-age pensions thought impractical for America.—Suggest compulsory contributions by workers, virtual insurance transferrable from one company to another.—Page 430.

Grave danger that Britten bill for compulsory use of metric system may become law.—All who would have to bear tremendous expense of changing from present system should take prompt steps to make opinion felt in Washington.—Pages 426, 429.

Quenching self-hardening steels appreciably decreases the thermoelectric e.m.f.—French investigator suggests this may be of great value in study of tool steel hardening.—Page 403.

Do tractors injure the farmer's market for feed and thus hurt him in the long run?—George B. Cavert, president, Cavert Wire Co., Ellwood City, Pa., says horses replaced by tractors would eat 11,250,000 bu. corn and 17,000,000 bu. oats annually.—Page 431.

James A. Campbell foresees better business in February.—Thinks current market is well sustained, for most part.—Page 418.

Steel Corporation distributed more than $2,000,000 in pensions last year.—More than 5000 on pension list at end of year; plan provides for future of about 250,000 employees.—Page 418.

Steel companies share in refunds for war amortization.—Refund to United States Steel Corporation amounts to nearly $28,000,000.—Page 419.

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February 11, 1926

Dr. Haney's Program for Business Analyses

DR. LEWIS H. HANEY, Director of the New York University Bureau of Business Research, will resume his studies of the significant movements in the metal trades with next week's issue. His program provides for analyses concerning:

Iron and steel in the light of the January showing....Feb. 18
General business conditions; Commodity prices.....Feb. 25
The status of the demand for iron and steel.....March 4

The month to month record of price and production tendencies included with Dr. Haney's studies have been supplemented with several new charts which will well repay thorough analysis in relation to each individual business.

For News Summary See Reverse Side

January Steel Ingot Production

Daily Rate 6836 Tons, or 4½ Per Cent Larger Than December—Total Close to 1925 Peak

A SHARP increase in the production of steel ingots in the United States was registered in January over December. At 159,752 gross tons per day the January output was 6836 tons in excess of that of December, a gain of about 4.5 per cent. In December there was a decrease in the daily rate of 2.1 per cent from November, though the month's total showed an increase. In October and November the increases over the previous month were 7.3 per cent and 8.4 per cent, respectively. The January total production, estimated for all companies, was 4,153,545 tons, comparing with 4,198,500 tons for the peak months, January and March, of 1925.

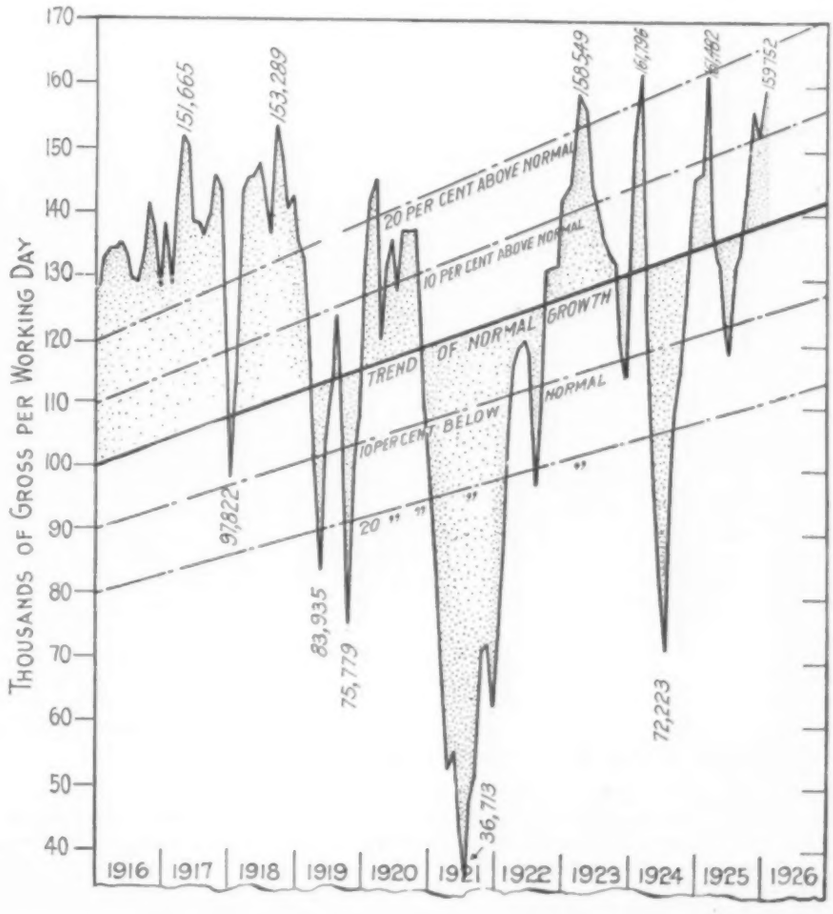
The statistics of the American Iron and Steel Institute show that the January production of the companies which made 94.43 per cent of the country's total in 1924 was 3,922,193 tons. Assuming that the 5.57 per cent not reporting produced at the same rate, a total January output is indicated of 4,153,545 tons.

The table gives the production by months of the different kinds of steel, together with estimated daily rates for all companies.

Monthly Production of Steel Ingots, Reported by Companies Which Made 94.43 Per Cent of the Steel Ingot Production in 1924

(Gross Tons)

Months 1926	Open-hearth	Bessemer	All Other	Calculated Monthly Production All Companies	Approximate Daily Production All Companies
Jan.	3,326,846	581,683	13,664	4,153,545	159,752
1925					
Jan.	3,262,748	689,996	11,960	4,198,564	155,502
Feb.	2,931,964	602,042	13,014	3,756,243	156,510
March	3,336,169	614,860	13,633	4,198,520	161,482
April	2,857,802	515,715	14,182	3,587,524	137,982
May	2,754,130	497,708	13,790	3,458,253	133,010
June	2,538,988	476,945	12,490	3,207,056	123,348
July	2,444,969	457,095	13,547	3,087,590	118,753
Aug.	2,696,667	523,734	12,914	3,424,034	131,694
Sept.	2,737,251	547,121	13,977	3,492,904	134,342
Oct.	3,075,995	584,567	15,624	3,893,028	144,186
Nov.	3,091,361	581,347	17,085	3,907,437	156,297
Dec.	3,169,224	569,304	15,843	3,975,824	152,916
Total	34,897,268	6,660,434	168,059	44,186,977	142,080



January Production of Steel Ingots Amounted to About 15 Per Cent Above the Normal, the Normal Representing Consumption by a Balancing of Excesses and Deficiencies of Production Over a Period of Years

Niles-Bement-Pond Co. Elects New Head

At the recent meeting of the board of directors of the Niles-Bement-Pond Co., at 111 Broadway, New York, Col. E. A. Deeds, chairman of the executive committee, was elected chairman of the board, succeeding R. K. Le Blond. Increased real estate interests in Florida necessitated the resignation of Mr. Le Blond, who continues, however, as a director of the company. J. B. Forrestal, Dillon, Read & Co., New York, was elected to the board of directors. James K. Cullen continues president, C. K. Seymour, vice-president, secretary and treasurer, E. L. Leeds, vice-president, S. G. Etherington, vice-president, and Arlo Wilson, assistant secretary and treasurer.

New Continuous-Flow Regenerative Type Air Heater

A recent development in air preheaters is the unit recently announced by the Blaw-Knox Co., Pittsburgh, which is of the continuous flow, regenerative type, and is claimed to combine the best advantages of recuperation and regeneration.

While both air and waste gases have a uniform flow to and from the heater, a novel arrangement of valves and heating chambers in the heater itself permits an alternate passage of air and waste gases over plate heating elements. The heating elements consist of thin detached steel sheets spaced about ¼ in. apart and arranged vertically in three chambers to give a large amount of effective heating surface per unit of volume. A simple and almost noiseless mechanism provides a sequence of valve operation which enables air and waste gases to flow alternately but in opposite direction through each of the chambers. Since heat transfer is caused by contact with the surfaces of the heating elements, deposits on the surfaces have practically no effect on heat transfer.

It is stated that the leakage factor, always of importance in work of this kind, is reduced to a minimum. In this heater, the leakage is practically limited to the chamber loss due to reversals and it is claimed that tests have shown that the total leakage can be kept as low as 2 to 3 per cent. The counter flow of air and waste gases tends to reduce materially the deposit of dirt on the heating elements, but where necessary soot blowers are installed to facilitate soot-removal and cleaning. All parts of the heater as well as the heating elements are accessible for cleaning, repairing and replacement when necessary.

It is said to be practical with the new heater to preheat air to within 150 deg. Fahr. of the temperature of the incoming waste gases. The device is applicable to industrial heating furnaces as well as boilers and can be designed for handling waste gases up to 2000 deg. Fahr. The heater is available in a range of sizes capable of heating from 5000 to 220,000 lb. of air per hr. It is being manufactured in accordance with patents issued to Waldemar Dyrssen and owned by the Blaw-Knox Co. It is being marketed in the general industrial field by Blaw-Knox Co. and in the central station field by the Power Specialty Co., 111 Broadway, New York.

Fence Wire and Corrosion

"The Corrosion of Copper Steel Fence Wire," by Oliver W. Storey, of the C. F. Burgess Laboratories, Madison, Wis., is now available in printed form. It is designated as report N-716 and records the complete data on fence wire corrosion, the earlier data on which were contained in a paper on the corrosion of fence wire delivered before the October, 1917, meeting of the American Electrochemical Society. The later data obtained in cooperation with the late D. M. Buck, chief chemist, American Sheet and Tin Plate Co., were never published, until included in the present pamphlet.

New Alloy Steel for Type

A new grade of steel for type stock has been developed by the American Tube & Stamping Co., Bridgeport, Conn., to meet the demands for a material to be rolled or swaged into type, such as is used in typewriters or adding machines. The company has given it the name Atasco alloy type stock.

The steel must of necessity be soft enough to lend itself readily to the forming of intricate design of the type, and thus must provide the sharp edges to the type. It must also respond to a case hardening operation uniformly without cracked edges. The company feels that the new steel meets these conditions and that it is also suitable for other uses.

An analysis of the new steel is approximately as follows: Carbon, 0.10 per cent; manganese, 0.40; phosphorus, 0.015; sulphur, 0.040, and vanadium, 0.18 per cent. Care in the melting, heating and annealing practice is pointed to as responsible for a considerable share of the desirable properties. It responds, it is stated, to any commercial case hardening practice, but in particular to hardening from a cyanide bath.

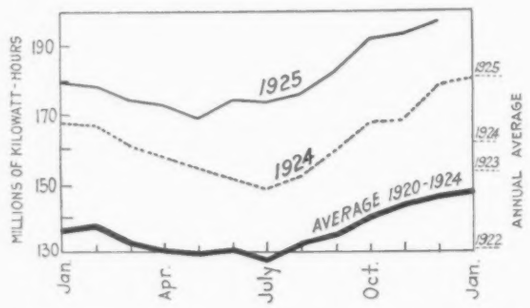
The company also has recently put on the market a copper bearing steel containing 0.25 per cent copper. It is furnished as both hot and cold rolled strip steel for use where corrosion must be withstood.

To Hold Hearings at Pittsburgh on Aluminum Co. Case

PITTSBURGH, Feb. 8.—Hearings will begin here on Feb. 15 in the complaint of the Federal Trade Commission against the Aluminum Co. of America. It is alleged that the company has used unfair methods of competition in an effort to create a monopoly. Hearings will be before Examiner William F. Shepard of the commission.

Record Output of Electric Power

New records were made in 1925 in the production of electricity by public utility plants. Every month of the year showed a higher output than the corresponding month of any previous year, and the average for the entire year was higher than the highest month of any previous year. Figures from the United States



Month by Month Output of Electric Current in 1924 *and in* 1925, *with Comparison for* 1920-1924 *Average*

Geological Survey show the December output at 6108 millions of kwhr., compared with 5787 in November and 5948 in October. About two-thirds of the amount comes from the burning of fuels, one-third from water power.

Daily average output, beginning with 179 millions of kwhr. in January, showed a gradual decrease to 169 in May and then an increase culminating in 197 in December. The average for the year was 181. For 1924, with average of 161, the highest figure was 179, in December. Averages for preceding years included 154 in 1923, 131 in 1922, 112 in 1921, 119 in 1920 and 106 in 1919. The returns cover all central stations, electric railway plants, and that portion of the output of other plants generating electricity which was given public use.

"What Toledo Makes and Sells," issued by the Toledo Chamber of Commerce, Toledo, Ohio, constitutes a convenient buyers' guide containing classified lists of articles manufactured and wholesaled in Toledo and an alphabetical list of Toledo manufacturers and wholesalers. Importers and exporters also are indicated Copies of the booklet, which contains 248 pages, may be obtained from Leonard J. Gans, Toledo Chamber of Commerce.

The McKeesport Tin Plate Co., McKeesport, Pa., is to equip its plant with hot mill doublers and tinning units. The Aetna Foundry & Machine Co., Warren, Ohio, will make the installation.

Three Big Men—and Their Methods

Character Studies of Gary, Schwab and Ford by Charles Piez, Chairman Link-Belt Co.*

THERE is a strain of similarity between all successful men, and yet, to outward appearances they are different. Three conspicuous examples are Judge Gary, Charles M. Schwab and Henry Ford. I know Judge Gary and Henry Ford just slightly; I know Mr. Schwab quite well.

Judge Gary

Judge Gary has an astute legal mind, a thoroughly trained intellect, splendid powers of analysis and reasoning, a philosophical attitude to business, and a thorough sense of the responsibility a big corporation owes the public. He doesn't work so much with his organization as above it . . . and he rules largely through the respect which his associates accord his judgment. . . . He has courage—that was demonstrated in his conduct of the steel strike. He has vision—that was demonstrated in the part he played in the organization of the corporation in the early days.

I had a peculiar experience with him several years ago which illustrates the character of the man. Many years ago, in our very early days, we didn't know much about conveying, and we had a large contract for a foundry system for the Deering Harvester Co. Our equipment didn't work satisfactorily but we felt we hadn't been given a fair chance. It was thrown out before we could correct the trouble and we were sued for the money that had been paid on account. Our lawyer was the best we could afford. The harvester company was at that time represented by Judge Gary, and we both went to court. He took our poor little lawyer by the nape of the neck, shook him hard, and dropped him. That was the end of the case—we lost.

At the time to which I referred I was seated close to Judge Gary at a dinner. He turned to me and said:

"Mr. Piez, I had a lawsuit against your company many years ago—"

I had a sort of sinking feeling. To myself I said: "Is the judge going to gloat over that 30-year-old victory?" And I had just about put myself in a defensive attitude when he continued:

"You know," he said, "I think I made a mistake at that time. You fellows had a good idea—what you needed was cooperation. What I should have advised my clients to do was to cooperate instead of fighting."

"That comes from your business experience," I remarked. "You never would have acted on that kind of a suggestion as a lawyer."

"Well," he answered, "we do get wiser as we get older."

Charles M. Schwab

Charles Schwab is a contrasting type—almost everyone knows the stories which circulate about him. During our work with the Emergency Fleet Corporation we lived at the same hotel for many months, and we had the intimate contacts which come from partnership in a great enterprise. . . . He is buoyant, always happy, rather emotional. He works on inspiration and instinct. He makes mistakes—but what a spirit! What resourcefulness in getting back on the right track. He knows men and their reactions. That is why he is a great success in industry and, although his genius is of a very different kind from that of the judge, yet he had the vision to foresee the tremendous future for steel, and I believe was the first to suggest the advantages of the large consolidation.

Mr. Schwab still dreams, and many times works out his dreams. He may err occasionally, but he recovers quickly. . . . He is far from the standardized, typical captain of industry—a human sort of chap who works with his heart as well as his head. . . .

I like to tell the story of my first intimate meeting with Mr. Schwab, because it is typical of his methods. It was at the time when Edward Hurley, chairman of the Shipping Board and president of the Emergency Fleet Corporation, realized that we had lost public confidence—when the public expected us to deliver 6,000,000 tons of ships and construct the yards to build them in overnight. So when the Germans made their great drive and we were confronted with an increase in our program, Mr. Hurley looked about for some outstanding figure who could help us regain, if possible, the confidence of the people and of the press.

We had an all-day session with Mr. Schwab. We told what we wanted, but he hesitated. He realized that he might be able to help, but he had vast contracts with the government, and likewise realized that to associate himself with the Shipping Board might lay him open to the charge of using his office to his own advantage. He said he would have to think matters over, and he returned to New York for a few days. When he came back he dropped into my office and sat down.

"I have had talks with friends in New York who know you," he said, "and I have decided to come on, if you stay."

"Mr. Schwab," I answered, "I don't know whether I can do that—I haven't worked under a boss for many years; I'm getting old, and I don't know whether we can pull together."

"Hell," he exclaimed, "I'm taking the same chance on you."

I told him I would stay. What else could one do but stay—with a man like that?

Some time later I went into his office. I said: "Are you feeling well today?"

"Now what have I done?" he asked.

"I think you have made a poor contract with So and So."

"What will we do about it?" he asked.

"I have seen them," I answered, "and they have consented to change."

"Good boy!" was his comment . . .

Henry Ford

Henry Ford is the direct antithesis to both Judge Gary and Charles Schwab. He is a slight, modest man, who isn't at all impressive to the eye. He has devoted himself to an idea that is sound and has kept everlastingly at it. . . . He has a theory that if you keep your eye toward the shop you will make selling very easy. That is what he has done—kept his eye on the shop, on the method of manufacture. Both of his Detroit shops are wonderful examples of organization of a new kind. He has disregarded all the old formulae. He has a very simple overhead organization—all the workmen receive substantially the same payment. There is no piece rate or other incentive for work, but he has this huge machine of his so arranged that each department's work dovetails and works out in a clocklike arrangement with the preceding and succeeding departments. The new work goes in at one end and comes out of each department at the time it is expected—and woe betide the man whose work piles up between his machine and the machine preceding it. . . .

Mr. Ford has humor. During the war, he was building sub-chasers. Mr. Schwab and I happened to be in Detroit, and I asked him if he was ever bothered by the stories which went the rounds about Ford machines.

"Not at all," answered Mr. Ford. "They are all good advertising."

Then he told a real Ford story which happened to himself. It seemed that he was experimenting with a worm drive on an old Ford. In testing it out he was driving out into the country some 15 or

*From a recent address before the Southern Illinois Manufacturers Association at St. Louis.

20 miles, when he came to a large car that was stalled at the side of the road. Two men were working and fussing with it. Henry stopped and said:

"I would like to be of some help, if you will let me."

At the end of about 15 minutes he succeeded in getting the machine going, and one of the men dove down into his pocket and pulled out a dollar.

"No thanks," Henry protested, "I have plenty of money."

"You're a liar," the man protested. "No man with plenty of money would drive a machine like that!"

Henry Ford has courage—moral courage and lots of it. . . . Remember that he was pinched for cash in 1921 by overwhelming inventories and an almost sudden cessation of business, and that when he approached the New York bankers and they said they would furnish the money if they could name the treasurer of the company and have representation on his board, he declined.

Instead he utilized the credit of his great sales organization and put himself back into a substantial and unassailable financial position. That was resourcefulness—and Ford has it.

Judge Gary, Charles Schwab and Henry Ford all have these qualities necessary to success—vision, courage, resourcefulness, and knowledge of men.

METRIC BILL AGAIN

Active Intention to Push Legislation for Compulsory Use

WASHINGTON, Feb. 9.—Opposition to the metric bill, introduced by Representative Britten, of Illinois, is expected to be vigorous when hearings are resumed on this measure before the House Committee on Coinage, Weights and Measures. Most of the testimony presented at hearings last week came from proponents of the measure, including Representative Britten.

At the request of opponents, hearings were adjourned to a date to be fixed later. Representatives of machinery manufacturers and others, it was stated, will appear as witnesses against the measure. In view of the intensive campaign being made by organizations supporting the measure, it was pointed out, it is proposed to have prominent representatives of industry to present testimony against the measure.

It was conceded during the hearings that the bill is intended as an approach to legislation that would put the metric system into effect generally in all lines. The present bill calls for compulsory use of the metric system for certain purposes on and after Jan. 1, 1935.

Widespread Opposition

Among witnesses against the measure last week who spoke briefly were C. C. Stutz, of the American Institute of Weights and Measures, and Samuel H. Dale, of Boston, formerly editor of a textile journal. It was explained by these opponents of the measure that their purpose in appearing before the committee was to inform its members of the widespread opposition to the bill.

In speaking of testimony favorable to the bill by Frederick L. Roberts, treasurer of the Metric Association, Mr. Stutz said that Mr. Roberts' organization "is made up of a group composed purely of idealists, for the most part, educators and scientists." In contrast to this kind of support for the measure, Mr. Stutz declared that all but an inconsequential percentage of those engaged in the actual conduct of industry and trade are opposed to the bill. To support his statement Mr. Stutz read a list of the national, State and local associations which have gone on record against the bill. Mr. Stutz declared that the word "compulsion" is an unpleasant sound to the American people, particularly as it relates to the "implantation" of a system which the people have declined to accept voluntarily.

In his testimony, Mr. Roberts said that "the bill covers merely the buying and selling of commodities and has no relation to the sale or surveying of land. We are endeavoring to get to the people of this country an understanding of the use of that system on the open market. It is the mildest form of legislation that could be enacted."

Unintentional Humor in Proponent Testimony

A touch of humor was given to the hearings when Representative Britten himself in endeavoring to show how simple the measure is, told the committee that the British pound is nearer the world pound than is the American pound, while actually, of course, the British pound and the American pound are identical.

Again at another point Mr. Britten in emphasizing the simplicity of the metric system, declared that if a fifty-seventh part of the world yard were required, all that is necessary is to put down fifty-seven and then place a decimal point before the figure. The actual fact is that the fifty-seventh part of a meter is nearly 17.54386 millimeters.

There also was an element of humor, and perhaps political sagacity, when Mr. Britten naively explained that much of the opposition to the metric legislation had come from farmers who object to changing acres to hectares and that for this reason the farmer was exempted because land measures are not affected by the bill.

Testimony in favor of the measure was also given by Dr. Harvey W. Wiley, former chief of the Bureau of Chemistry, and Dr. Charles L. Parsons, secretary of the American Chemical Society. Although opponents of the bill have not presented their testimony, Representative Fitzgerald, of Ohio, after listening to the testimony of Mr. Britten, declared emphatically that he would "vote first, last and all the time for a favorable report on the measure."

World Production of Ships Declines—Increased Motor Ship Output

The United States launched only 128,776 gross tons of merchant vessels in 1925, out of a total of 2,193,404 tons for the world. This was a decline of about 10,000 tons from the tonnage produced by this country in 1924, according to Lloyd's Register of Shipping. The total of the world also showed a decline, 54,000 gross tons less having been launched than in 1924. The loss of Great Britain and Ireland was 355,000 tons, but this was partly balanced by a gain of about 310,000 tons by other maritime countries. Germany's share in the gain was over 200,000 tons.

Growth in the use of the motor ship is also reflected in Lloyd's returns. In 1921, steam-turbine vessels launched aggregated 1,195,000 tons, as against only 306,000 tons of motor vessels. In 1925, Germany, Italy, Denmark and Sweden alone launched 496,598 tons of motor vessels.

Welsh Tin Plate Makers Pool Orders

WASHINGTON, Feb. 9.—Effective yesterday, tin plate makers of Wales entered into an agreement to pool all orders, according to consular advices received by the Department of Commerce. The pool represents 95 per cent of the trade and each member has an allotment of orders. He may exceed this quota, the report says, and may sell at such price as he will, but for every box he sells over his quota he must turn over to the pool 1s., of which 9d. goes to members selling less than their quota in the period affected. The report states that it is expected that the pool will curtail production.

Lost-Time Accidents in Worcester

Results in 1925 Among 46 Plants in Contesting for Safety Record

WORCESTER, Feb. 6.—The Worcester Safety Council, in concluding another year of its lost-time accident contest among the plants of its members, has again ranked them in numerical order, taking as a basis the number of accidents involving the loss of a day's time per 100 employees. Forty-six plants competed, averaging to employ through the year 25,365 people. The total number of lost-time accidents was 692, the total number of days lost 14,032. The average was 2.73 accidents per 100 employees, which was an increase from 2.63 as compared with 1924, but still far below the 4.37, which was the result in 1923. The average number of days lost per 100 employees in 1925 was 55.5, as compared with 44.4 in 1924.

The National Works of the Wickwire-Spencer Steel Co. took first place, its 172 employees having no accidents in the 12 months. The machine division of the Norton Co., with 309 men, had only one accident in the year, making its rate per 100 employees 0.32, and giving it third place in the contest. The Norton wheel division, with 1671 employees, took fourth place, with seven accidents, or 0.41 per 100 employees.

The Worcester works of the American Steel & Wire Co. gained high rank in the list of 46, especially when the hazardous nature of much of the employment is taken into account. South Works, with its steel plant, rolling and wire mills, and specialty departments, including press rooms, employing in the year an average of 2260 people, ranked No. 7. It had only 24 accidents, the number per 100 employees being 1.05, far below the total average of 2.73. Central Works, with 155 men, had three accidents, or 1.93 per 100, and ranked 14. North Works, with 1228 men, ranked 19, with 29 accidents and an average per 100 employees of 2.25. Thus all three plants registered well below the average.

Morgan Works of the Wickwire-Spencer Co. with 315 men and 5 accidents ranked 11; the Graton & Knight Mfg. Co., leather belting, with 1182 people and 19 accidents, ranked 12; Walden-Worcester, Inc., wrenches, with 150 men and three accidents, ranked 15; Goddard Works of Wickwire-Spencer with 701 men ranked 16; Baldwin Chain & Mfg. Co., 17, and the Whitin Machine Works, Whitinsville, Mass., manufacturer of textile machinery, with 2151 men and 63 accidents, ranked 23.

The increase in the rate of accidents, comparing 1924 and 1925, is attributed to more active industrial conditions, the theory being that when works are running at higher tension the accident hazard automatically rises correspondingly. However, the increase in number of accidents reckons as only a few per cent. But the increase in number of days lost per accident was more striking, being from 44.4 to 55.5 days, or 25 per cent. The deduction has been made that not only the number of accidents but their seriousness increases with higher production.

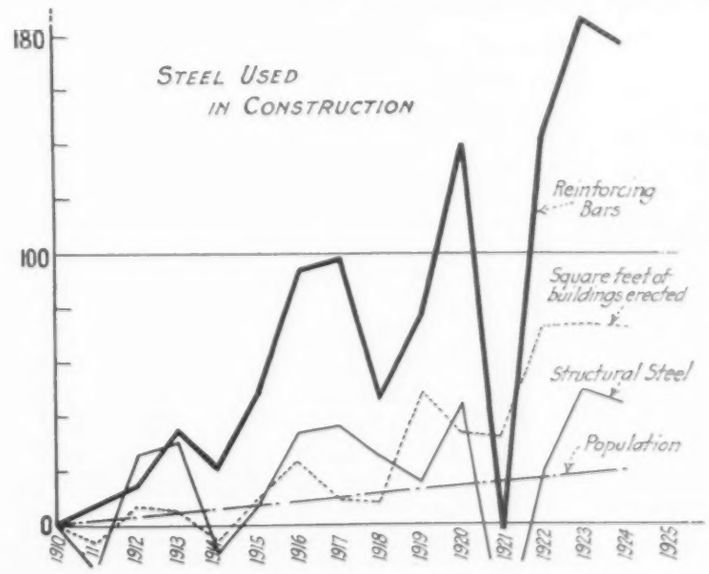
LeMoyne Steel Co. Regains Its Name

The Armstrong Steel Co. has again become the LeMoyne Steel Co. In THE IRON AGE, Aug. 13, 1925, page 407, it was announced that P. A. E. Armstrong, for about eight years vice-president and general manager Ludlum Steel Co., Watervliet, N. Y., had bought the LeMoyne Steel Co., and that its name had been changed to the Armstrong Steel Co. with Mr. Armstrong as president. Restoration of the former name of the company is explained by D. W. Kuehn, vice-president of the company, as being due to the fact that the deal for the acquisition of the company had not been completed and that it had reverted to its original owners. H. A. Kuehn is again president of the company, which has a plant at Monongahela, Pa., and makes alloy and high-speed steel.

Completes Large Shear

The United Engineering & Foundry Co., Pittsburgh, has completed the largest electrically driven bloom shear ever built by it, with cutting pressure between knives of 1,800,000 lb. and requiring a 250-hp. motor for operation. It has capacity to cut 6 x 40-in. slabs and, by means of special knives and knife blocks, will shear blanks for 15, 18, 20 and 24-in. I-beams. An idea of the massive construction may be gained from the fact that the crank pin is 26 in. in diameter and 30 in. long. The shear is equipped with the United company's patented clutch which slides on splines cut into the shaft, instead of on keys. Moving parts of the shear are balanced by a compensating spring balance which gives a uniform balance at all points of the stroke. The clutch is operated by an electric pull-out device which permits the shear to be operated from a distance.

Rapid Increase in Use of Reinforcing Bars



THAT reinforcing bars have played a rapidly increasing part in construction is evidenced by the chart at left. During the last 15 years the use of reinforcing bars has increased about 180 per cent (based on 1910 production) as compared with approximately a 50 per cent gain for structural steel. Notice that fluctuations in reinforcing bars are wider than those of structural steel or in the volume of building, as indicated by square feet of buildings erected. The curve for the last named factor was obtained (for the years prior to publication of floor-space figures) by using an average ratio between building volume in dollars and floor space in corresponding years. This was then applied to building volume as indicated in dollars.

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Income Tax and Initiative

FROM a broad consideration of the economic and business situation the reduction in surtaxes promised by the new tax law may be needed simply to sustain industrial activity. There is one particular point in this connection that needs to be emphasized. There was much reference to it a few years ago, but the talk seems to have died out, while the principle remains.

This point is that the income tax considers each year as a unit, in one's affairs, irrespective of the other years. If there are large profits in one year the tax is particularly heavy. Small profits in another year, or losses, do not help to make up. Thus if for two years two incomes are the same, but in one case the income falls all in one year, and in the other case the income is equally divided between the two years, the tax in the first case is much higher than the tax in the second.

With an old line business well established this feature counts, for even in the best established business there are rather wide variations in earnings from year to year, but it does not count anything like so much as in a new venture. In a new line there may be a loss, or small profits, for a year or two, and then large compensating profits when the new venture has found itself. For the same profits in three years as a whole the investor is taxed much more than he would have been had his capital been in an old business, with relatively uniform profits year by year.

All this was fully brought out in the early years of the surtaxes. It is less to the point now insofar as surtaxes are smaller, but it is much more to the point than formerly in that the country needs new ventures much more now than it did a few years ago, not new construction along old lines, but ventures involving new commodities and new lines of service.

After the war there were many arrearages to be made up, in building and in various commodities. This involved industrial activity along old lines. We are now quite well caught up in such connections. We need new things now more than ever before.

There has been a great increase in efficiency both of men and of plant facilities, with the result that our physical production is unprecedentedly large relative to the time and effort expended.

For business along old lines to grow up to capacity simply through increase in population is altogether out of the question. Our population has been growing at a rate of about 1½ per cent a year. Who can imagine any manufacturing plant, merely kept up, not expanded or really "improved," that will not gain in productive ability at more than 1½ per cent a year?

Indeed, where should we be even now, had there not been new things like the automobile and the radio to sustain the volume of business and employment? Now we need new things more than ever, when arrearages are made up and the old lines of business are functioning so smoothly and efficiently. The reduction in surtaxes should prove a stimulus to new ventures, such as are promising for a period of years but may have great variations in profits between one year and another

The Business Prospect

THERE is much evidence indicating that the swelling industrial activity of 1925 culminated about the end of the year and that during January a waning began. There is no question that the speculative development of Florida has passed its zenith and that certain kinds of speculative building elsewhere are receding from high-water mark. Those things are, however, more of the nature of incidents than illuminations of fundamental economic conditions.

In respect to the elemental things the very important are the overbuying of consumers' goods on credit and the continued unbalance in the division of the produce of industry. The former is relatively new and of the more immediate effect. The latter is already old and is slow, very slow, in its working. It is possible, perhaps, to see the first of these conditions as growing out of the second.

It was estimated at the end of 1925 that consum-

ers' goods had then been bought on partial payment plans to the extent of five billion dollars, this representing a deferral in addition to the ordinary delay in settling charge accounts. The people of the country have been led thus extensively into the purchase of automobiles, radio sets, furniture, jewelry, etc., on the instalment plan. Thus a great deal of business was done in 1925 that would otherwise have developed in 1926.

In the discussion of this practice there has been a tendency to minimize it. For example, it has been remarked how small a percentage five billion is with respect to the national wealth, about 300 billion. That is not, however, the proper correlation, which rather is with the annual national living expense. The American people are probably at present enjoying an aggregate income of about 70 billion. Conjecturely they may be saving about 10 and consuming goods to the extent of about 60. In respect to a large part of the goods credit is not extended. The petroleum refiners, for example, do not distribute gasoline on credit; nor do the retail coal merchants go very far with their charge accounts. If we may imagine that consumption goods to the extent of 20 billion dollars per annum are distributed on credit, an increase of 5 billion is a large percentage. Anyhow, the condition means that the people of the country may have spent 65 billion dollars for consumption goods whereas they could have had only 60 billion dollars' worth if they had been confined to current earnings.

What may develop from this condition? At the worst the people might fail to make good on their contracts by sheer inability, which would ensue if extensive unemployment should develop. This would result in financial disaster just as now is happening in the anthracite coal region. That, however, is an economic affair involving perhaps 250,000 workers, whereas widespread unemployment would be expressed in terms something like ten times as great.

At the best, there will be simply a slowing up in demand, while people are catching up in the fulfillment of their obligations. Indefinite prolongation of this kind of credit extension is out of the question. If it is to become a prevailing practice, there must be periodical halts. However, more halts will produce some unemployment, although that may not become widespread.

At the present time the outlook is for a slowing up of this nature and for the above reason. It may be only a relaxation, rather than a definite recession. Certainly there has been no decline in the stock market which might be interpreted as discounting anything. From this it may be inferred that producers have not been lugging any troublesome loads. In other words they are not overstocked with unsold goods. The industrial, physical statistics support such a view.

The great adverse economic factor is the maldivision of the produce of industry. This is expressed in the prosperity of town labor and the leanness of agricultural returns. Among town labor itself there are maldivisions in favor of building mechanics and against white-collar workers. There may easily be a correlation between this maldivision and the extravagances in the expenditures for consumption goods and the promotion of the partial-payment plan. This condition of unbalance will be a constant worry to us, which will continue to be expressed in agrarian discontent, and probably in other ways. It will be a long time, however, before correction will really begin.

An Imminent Metric Danger

THERE is grave reason to fear that the Committee on Coinage, Weights and Measures of the House of Representatives will presently make a favorable report on the Britten bill, which is the first step toward making the use of the metric system of weights and measures compulsory in the United States, and indeed may be the whole step. The committee is believed to be prometrically inclined and nothing but prompt and powerful educational effort is going to prevent it from casually launching a danger that at present it does not, itself, comprehend.

The danger is the greater in that the industrialists of the country have for years refused to view it seriously, save for a small band of those of long vision. By the great majority, however, the prometric movement has been regarded as preposterous, ridiculous, idealistic, fanatical; something that could never amount to anything.

We know what we are saying when we affirm to our readers who have been indifferent in respect to this subject that they are blind and wrong. The metric propaganda is evangelical and consequently is unremitting. It reflects the spirit of those who have made up their mind what ought to be and are going to make the majority be righteous whether they want to be or not. The metric system has been legal in the United States for 60 years, but it has come into only trifling use. Therefore those who think it would be good for us would make us use it; and not let us use anything else.

The argument in favor of the uniform use of the metric system is superficially plausible. For that reason the non-technical press is generally favorable to it. The scientists are all but unanimous for it. Even many engineers have a leaning toward it. A Congress of lawyers and politicians may thus easily be deceived into thinking that it were doing a popular and meritorious thing. Let not the industrialists, therefore, doze away with the comfortable feeling that nothing is going to happen to them.

The railroads should send their representatives to Washington to tell what it would cost them to change all their mile posts and rewrite their tariff schedules, just to mention a few things. The gas and water companies should speak a piece about recalibrating their meters. The petroleum industry ought to have important things to say in respect to its own measures. Likewise the retail merchants of all descriptions. While as for the manufacturers! The exigency for scrapping patterns, jigs, gages, etc., and making new ones of metric style should become the basis of a tale of woe, or rather the telling to congressmen not to be damn fools.

Not so long ago 31 manufacturers of metals em-

ploying nearly a hundred thousand men furnished estimates of the cost to them of a compulsory change to the metric system that was reduced to the general estimate of about $200 per worker. Considering that there are something like ten million factory workers in the United States the total cost might be only two billion or so.

Let every industry consider and figure what a compulsory change to the metric system, the prohibition of any longer doing business in terms of the foot and inch, the pound and gallon, would mean to it. Let every daily newspaper editor, who writes so thoughtlessly in favor of uniformity with the countries of South America, inquire of his commercial and mechanical departments what would happen in his own publishing affairs.

There is not a man, woman or child in the United States who would not be adversely affected by the compulsory enactment of the metric system of weights and measures. It would really be less harmful if Congress should prescribe that on and after a certain date all business in this country should be transacted in the French language.

This is not an academic affair. This is no Cassandran warning. If after reading what we have herein said anybody still has any doubt he would do well to consult his Washington agent. It will be easier to educate the committee of the House than the whole body of its members on the floor. Even if a compulsory metric law were eventually pronounced unconstitutional, as the late Philander C. Knox thought it would be, it would be cheaper to scotch it in inception than to have to kill it full grown in the courts.

A New Steel for Rails

RAILS of a so-called low-manganese alloy have been used several years in the track of a leading American railroad. Details of the manufacture of the steel and its advantages were published in THE IRON AGE last week. It appears that by varying the manganese from 1.25 to 1.75 per cent and the carbon, in corresponding inverse ratio, from 0.30 to 0.85 per cent, it develops under suitable heat treatment properties approaching those of the more expensive alloy steels.

During the war much was heard of a low-manganese alloy steel, which made possible the production of cast steel chain, when wrought iron was scarce. Since the war the same steel has been used in locomotive frames and forgings, and in several other ways. Today the same steel is playing an important rôle in the automobile industry. Now it has been adapted to railroad trackwork.

Rail experts admit that the carbon rail, made heavier to withstand conditions of modern traffic, is more liable to segregation and to other defects because of the necessarily higher carbon content. The new steel, with its lower carbon and higher manganese, is said to minimize these tendencies.

The claim, however, that this new steel is less subject to transverse fissures must be taken with some reservation—at least until after several more years' trial in service. It is generally conceded that even sound steel is liable to fissures resulting from over-worked metal due to excessive wheel impacts.

The experience of the railroad which has developed this new rail steel has been so successful that another large American trunk line has ordered several thousand tons for trial purposes, and other roads are seriously considering a like step. If the new steel turns out to sustain the claims for it, the old objection of the extra cost of a better rail is not likely to prove much of an obstacle to an expanding use of it.

Old Age Contributory Pension

VIEWS of the National Civic Federation on old age pensions, in a report recently issued, have had favorable attention among industrial plant owners. The report thrusts aside as impracticable and un-American the system as practiced abroad, in which the taxpayer, through the State, is a large contributor of money, while most, even in some cases all, of the remaining burden is placed upon the employers. It deduces that for the American workman a system based upon systematic thrift, in which he himself regularly pays his share, as if he were paying on an insurance premium, is the solution of the problem.

The plan savors strongly of insurance, in the common sense of the word; indeed, the suggestion is made that the funds as they accumulate be administered by an insurance company or other similarly strong organization. The theory is not new, of course, but certain aspects of the question are treated in a highly helpful manner.

Most of the private pension systems as they now exist have as their basis long, continuous service on the part of the beneficiary. Worthy men and women who from time to time lose their employment, or, in the desire to improve their status or for other reason, change from place to place, are seldom given a place in a pension plan. This is as it should be, because long service is frankly the reason for the pension, which is the gift of the owners as a token of appreciation and reward.

The Civic Federation idea is to create a contractual relation between owner and worker, applying alike to old and new employees, in establishing a pension fund to which they and the owners should contribute to an amount to be established after careful actuarial study. A worker would profit to the extent of his money contribution, no matter what his length of service might be in one particular plant. His certificate, or whatever the contract form might be called, would have a value when old age comes, or in case of total disability, or at death, or otherwise according to the agreement. As to the employer, he would retain the right to bring to a close the operation of the plan, but in such a case the employees would retain their pension rights in the fund so far as it had accrued.

A system built upon these lines would be easy to maintain, the report points out, were all the beneficiaries of the future young people, just entering upon their industrial careers. But there

would be difficulties to overcome, to quote as follows:

> "Whenever and wherever a plan of contributions may be initiated, the majority of the employees will be well beyond such earlier age, and many far beyond it, and, consequently, variously in arrears for contributions, with the eventual consequence that, unless such arrearage be made good in whole or in part, the annuities earned by their contributions will be more or less inadequate—in the case of the older employees, grossly inadequate. Such arrearages are commonly termed 'accrued liabilities.' Such sums will almost always be too great to be made up immediately. Consequently the practical steps in the initiation of such a plan are:
>
> "First, an arrangement for contributions sufficient to guarantee that the funds accumulated shall cover all future accruals of liability; second, by a system of supplementary contributions, or extraordinary donations by the employer, to reduce, so far as possible, the arrearages of the older employees for liabilities accrued before the adoption of the plan."

The first of these two steps alone in a generation would result in the protection of all steady workers. Meanwhile private enterprise in the shape of life insurance companies is meeting a part of the problem, and through the education these are giving to employer and employee, the way is doubtless being made the easier for the mutual and independent establishment of pensions by the parties directly interested, without paternalistic governmental support.

RECENT steel-mill equipment changes have differed from those of a decade ago mainly in being aimed at higher operating efficiency, rather than greater tonnage. Typical of the modern movement is the large program of reconstruction undertaken by the Bethlehem Steel Corporation. At its Lackawanna Works the new mills, described in this issue, were designed to operate at lower labor charges than the (now) abandoned mills which they replace. That some additional tonnage is made possible is largely incidental. The main idea was to improve working conditions, lower costs and stabilize dividends. Five weeks ago, in the first section of the article, were described the changes in coke oven and open-hearth departments. Here, also, the tonnage issue occupied a relatively secondary position, although served incidentally by the new equipment installed.

CORRESPONDENCE

Corn Farmers and Tractors

To the Editor: The editorial in THE IRON AGE, issue of Feb. 4, "What Ails the Western Farmers?" suggests my sending the following copy of a letter from one of those Western farmers received by the secretary of the Horse Association of America.

I have just taken up to-day's Chicago *Tribune* and note the big spread across the top of the front page, "Iowans Lead Corn Revolt," and in the context the statement that King Corn has told the world that the time has come to put grain and hogs and cows on the money parity with gasoline and other products. In another column I note that "Corn is King at Morris, Ill., To-day," and the cry is to the people all over the United States to eat more corn. Running daily is the international debate on how possibly and sensibly to better conditions for grain farmers of America by legislation and government action. . . .

If farmers would use the grain and farm products for the raising of horses and for the feeding of horses while they tilled their land with them, it would not be substituting corn and oats for the other farm products which human beings are now eating, but it would be substituting a use of farm products for gasoline and crude oil that economists tell us we soon will have a shortage of in this country. . . .

The farm power survey made by the Department of Agriculture reports 450,000 tractors in use on United States farms. The tractor men claim that every tractor displaces at least two horses from farm work. You can figure for yourself that 900,000 horses would eat considerable corn, oats, hay and forage.

Personally, I have never been able to see that tractors have displaced many horses; but it is true that on farms where tractors are used to do plowing, disking, etc., the horses do less hard work and are fed less grain, so I figure that the 450,000 tractors have cut the grain ration for 900,000 horses in half, thereby reducing farm use of grain for work stock by 11,250,000 bushels of corn and 17,100,000 bushels of oats.

A good share of our trouble to-day is that we have too much grain and not enough live stock. If the horses that have been displaced by motors in cities were back, it would represent a greater market, I believe, than our exports of corn and oats ever amounted to.

Horses and mules, wisely handled, will do any kind of farm work requiring motive power at less cost than tractors, and they also have the great advantage of using farm raised products, thereby helping to stabilize the market.

In addition to the foregoing, would say that the number of horses and mules employed in non-agricultural work decreased 1,369,299 in the last decade. This displacement destroyed a market for farm products per annum to the extent of 4,107,897 tons of forage and 254,889,614 bu. of oats; or if corn had been substituted for one-third of the oats it means that we lost a market for 48,897,667 bu. of corn and 169,926,409 bu. of oats. It will be observed that the reduction of horses and mules in cities and in non-agricultural work has destroyed an annual market much greater than our annual exports.

At the present time the farmers of the country are demanding of Washington the equivalent of a bonus to take care of deficits, or in other words, they ask the Government to find an export market for their surplus products at a price, whereas the facts of the case are that the market is right here if they will only go after it, and with all the sales ammunition there is in favor of the horse vs. the motor, there is no reason in the world why the horse should be displaced on the streets by the motor.

To illustrate: Harry N. Taylor, president of the United States Trucking Corporation, New York, one of the largest trucking concerns in the country, makes this statement: "It costs us 6c. a minute, or $3.60 an hour, to keep our motor trucks on the streets of Greater New York; it costs us 2c. a minute, or $1.20 an hour, to keep our horse-drawn trucks on the streets of Greater New York, and the horse-drawn trucks can do as much as the motor trucks can, and this is why we are displacing the motor trucks and using horse-drawn vehicles instead, it not being a matter of sentiment at all, but a business proposition, pure and simple."

One of the primary causes of the excessive spread as between what the producer gets and the consumer has to pay is high cost of handling.

Evidently what the farmer requires more than anything else is common sense as suggested in above letter, namely, keeping his overhead down by using actual horse power for his operations instead of motor power, the horse or mule being a by-product of the farm and furnishing the fertilizer to keep up the productivity of his land, whereas the motor is the product of an industry that destroys the market for the products of the farm, etc.

GEORGE B. CAVERT,
President and Treasurer, Cavert Wire Co.
Ellwood City, Pa.

Iron and Steel Markets

Bookings Average Above January

Total Demands Not Sufficient to Increase Operations—January Steel Output Remarkably High—Profits in Coke Curtail Pig Iron Production

NEW business so far in February shows improvement over January, but while the Steel Corporation remains at close to the 90 per cent rate of operations of a week ago, activity on a whole is on a slightly lower basis.

The flow of orders, while steady, is now sufficiently below the December level to call for the gaging of production in the interest of price preservation.

Specifications released in January against the purchases late last year proved unexpectedly heavy and are largely responsible for a daily ingot production in January exceeded only twice, in March, 1924, and March, 1925. At 4,153,545 tons for the month, or roundly 159,750 tons per working day, last month's steel output was about 15 per cent above theoretical needs or the normal growth in demand. It was 4½ per cent more than December, but under January, 1925.

The anthracite coal strike is disturbing usual market currents. The highly remunerative prices obtained for coke as a domestic fuel substitute is causing a further banking of blast furnaces. In the Pittsburgh and Youngstown districts four stacks have been banked, one to avoid buying coke at present prices and three to sell coke they make. At least two other furnaces contemplate early suspension to secure some of the coke business.

In the face of weakness in pig iron in certain centers induced by the lack of demand, curtailed output together with the possibility of higher contract coke and ore is influencing some sellers to take a firmer stand. An Ensley, Ala., furnace and a Federal stack at Chicago have been blown out for repairs.

On the Eastern seaboard heavy offerings of foreign iron at low prices have had a depressing effect, but this material was bought by American brokers some time ago and meanwhile prices abroad have advanced, indicating that the present competitive situation is temporary.

In spite of a stiff stand by the larger producers, black and galvanized as well as automobile body sheets are obtainable at the prices of last November. These represent a recession of $2 a ton, though not much had been bought meanwhile, as consumers have not used up the material covered prior to the advance.

Increased sales of pipe, both in merchant sizes and for the oil industry, and of wire products have brought no higher plant operations. Makers had built up stocks in preparation for the demand.

Chicago makers booked 20,000 tons of rails, including 14,000 tons for the Cotton Belt. The New York Central has decided to exercise its option for upward of 52,000 tons in connection with 155,000 tons bought in October.

The Pacific Fruit Express placed 4043 cars in the Chicago district and 1000 cars on the Pacific Coast. Fresh inquiries appeared for 1175 cars.

In general finished steel lines Chicago reports buying slightly in excess of shipments. Deliveries of universal plates have become sufficiently extended to allow the East to sell there at the Pittsburgh basis.

That fabricated steel demand is keeping up is shown by the week's bookings of 25,000 tons, the average of the five previous weeks.

Detroit reports automobile manufacture at a higher rate than January and without a storing of cars.

As was the case in recent years, the Ford Motor Co. has issued the first inquiry in the open market for ore for 1926. It asks for 275,000 tons, but it may be 30 days before prices for the season are named.

Scrap shows weakness in all markets. At Pittsburgh, Chicago and Buffalo heavy melting steel has again dropped 50c. a ton. The market gets practically its only support from dealers who wish to deliver before customers cancel.

Following Japan's purchase here of 5000 tons of rails, the Nippon Oil Co. has divided 55,500 boxes of tin plate between the Steel Corporation and the Weirton Steel Co.

THE IRON AGE composite price for finished steel is now 2.424c. per lb., compared with 2.439c. last week and 2.546c. a year ago.

Pig iron remains unchanged, the composite price having stood at $21.24 for eleven weeks. One year ago it was $22.50.

Pittsburgh

Steel Output Declines — Sheets Weak — Pig Iron Has Stronger Tone

PITTSBURGH, Feb. 9.—Steel-making units of the Steel Corporation are holding up well to the recent rate of production, but operations of the independent companies generally have eased down somewhat since a week ago, and the average operation of this and nearby districts is now about 80 per cent of capacity, as compared with the recent average of about 85 per cent. The decrease, of course, finds its principal explanation in the fact that business, while steady enough, is well below the December volume. There is also the factor of price preservation, which calls for a close gaging of production by real demands, and the high and remunerative prices ruling for coke, which have caused further banking of blast furnaces.

In some cases where business has actually shown

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous

For Early Delivery

Pig Iron, Per Gross Ton:	Feb. 9, 1926	Feb. 2, 1926	Jan. 12, 1926	Feb. 10, 1925
No. 2X, Philadelphia‡	$24.26	$24.26	$24.26	$25.01
No. 2, Valley furnace†	20.50	20.50	20.50	22.00
No. 2, Southern, Cin'ti†	25.69	25.69	25.69	24.05
No. 2, Birmingham, Ala.†	22.00	22.00	22.00	20.00
No. 2 foundry, Ch'go furn.*	23.00	23.00	23.00	24.00
Basic, del'd, eastern Pa.	23.00	23.00	23.00	23.75
Basic, Valley furnace	20.00	20.00	20.00	22.00
Valley Bessemer del'd P'gh	22.76	22.76	22.76	24.76
Malleable, Chicago furn.*	23.00	23.00	23.00	24.00
Malleable, Valley	20.50	20.50	20.50	22.00
Gray forge, Pittsburgh	21.76	21.76	21.76	23.26
L. S. charcoal, Chicago	29.04	29.04	29.04	29.04
Ferromanganese, furnace	115.00	115.00	115.00	115.00
Rails, Billets, Etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Bess. billets, Pittsburgh	35.00	35.00	35.00	37.00
O.-h. billets, Pittsburgh	35.00	35.00	35.00	38.00
O.-h. sheet bars, P'gh	36.00	36.00	36.00	38.00
Forging billets, base, P'gh	40.00	40.00	40.00	42.50
O.-h. billets, Phila	41.30	41.30	41.30	41.67
Wire rods, Pittsburgh	45.00	45.00	45.00	48.00
Light rails at mill	36.00	36.00	36.00	40.32
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	1.90	1.90	1.90	2.10
Finished Iron and Steel, *Per Lb. to Large Buyers:*	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.22	2.22	2.22	2.28
Iron bars, Chicago	2.00	2.00	2.00	2.00
Steel bars, Pittsburgh	2.00	2.00	2.00	2.10
Steel bars, Chicago	2.10	2.10	2.10	2.20
Steel bars, New York	2.34	2.34	2.34	2.44
Tank plates, Pittsburgh	1.80	1.80	1.90	2.00
Tank plates, Chicago	2.10	2.10	2.10	2.30
Tank plates, New York	2.09	2.09	2.09	2.34
Beams, Pittsburgh	1.90	1.90	1.90	2.10
Beams, Chicago	2.10	2.10	2.10	2.30
Beams, New York	2.24	2.24	2.24	2.44
Steel hoops, Pittsburgh	2.50	2.50	2.50	2.50

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire, *Per Lb. to Large Buyers:*	Feb. 9, 1926 Cents	Feb. 2, 1926 Cents	Jan. 12, 1926 Cents	Feb. 10, 1925 Cents
Sheets, black, No. 28, P'gh	*3.25*	3.35	3.35	3.50
Sheets, black, No. 28, Chicago dist. mill	3.45	3.45	3.45	3.70
Sheets, galv., No. 28, P'gh	*4.50*	4.60	4.60	4.75
Sheets, galv., No. 28, Chicago dist. mill	4.70	4.70	4.70	4.85
Sheets, blue, 9 & 10, P'gh	2.50	2.50	2.50	2.70
Sheets, blue, 9 & 10, Chicago dist. mill	2.60	2.60	2.60	2.80
Wire nails, Pittsburgh	2.65	2.65	2.65	2.85
Wire nails, Chicago dist. mill	2.70	2.70	2.70	2.95
Plain wire, Pittsburgh	2.50	2.50	2.50	2.60
Plain wire, Chicago dist. mill	2.55	2.55	2.55	2.70
Barbed wire, galv., P'gh	3.35	3.35	3.35	3.55
Barbed wire, galv., Chicago dist. mill	3.40	3.40	3.40	3.65
Tin plate, 100 lb. box, P'gh	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	*$17.00*	$17.50	$18.00	$19.50
Carwheels, Philadelphia	17.50	17.50	18.50	19.50
Heavy steel scrap, P'gh	*17.50*	18.00	19.00	20.00
Heavy steel scrap, Phila.	16.00	16.00	17.50	18.00
Heavy steel scrap, Ch'go	*13.75*	14.25	15.25	17.50
No. 1 cast, Pittsburgh	17.00	17.00	17.50	20.50
No. 1 cast, Philadelphia	18.00	18.00	18.50	19.00
No. 1 cast, Ch'go (net ton)	17.00	17.00	17.00	18.50
No. 1 RR. wrot., Phila.	18.00	18.00	18.50	20.00
No. 1 RR. wrot. Ch'go (net)	*12.75*	13.25	13.50	16.00
Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	$10.50	$10.00	$6.00	$3.75
Foundry coke, prompt	11.50	11.00	6.50	4.25
Metals, *Per Lb. to Large Buyers:*	Cents	Cents	Cents	Cents
Lake copper, New York	14.50	14.12½	14.25	15.12½
Electrolytic copper, refinery	14.00	13.75	13.87½	14.62½
Zinc, St. Louis	8.07½	8.07½	8.70	7.55
Zinc, New York	8.42½	8.42½	9.05	7.90
Lead, St. Louis	9.12½	9.10	9.00	9.37½
Lead, New York	9.25	9.25	9.25	9.55
Tin (Straits), New York	63.50	62.00	62.75	57.12½
Antimony (Asiatic), N. Y.	21.50	21.50	24.25	20.00

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

THE IRON AGE Composite Prices

Finished Steel

Feb. 9, 1926, 2.424c. Per Lb.

One week ago	2.439c.
One month ago	2.453c.
One year ago	2.546c.
10-year pre-war average	1.689c.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

	High		Low	
1925	2.560c.,	Jan. 6	2.396c.,	Aug. 18
1924	2.789c.,	Jan. 15	2.460c.,	Oct. 14
1923	2.824c.,	April 24	2.446c.,	Jan. 2

Pig Iron

Feb. 9, 1926, $21.54 Per Gross Ton

One week ago	$21.54
One month ago	21.54
One year ago	22.50
10-year pre-war average	15.72

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

	High		Low	
1925	$22.50,	Jan. 13	$18.96,	July 7
1924	22.88,	Feb. 26	19.21,	Nov. 3
1923	30.86,	March 20	20.77,	Nov. 20

some gain, it has not been necessary to put on additional productive capacity, because manufacturers had ample stocks to draw upon. A notable case of this sort is in steel pipe, and better business in some lines of wire products also has failed to bring about higher plant operations, because of the preparations manufacturers had made against current demands. In a general way, steel prices are holding very well.

There is uncertainty in sheet prices because a good many of the smaller makers are taking business in the common finishes at $2 a ton below recent prices, which the larger makers are endeavoring to maintain. Practically all makers of automobile body sheets have let the price down $2 a ton to 4.40c. base.

Although lacking in activity, there is a stronger tone to the pig iron market, due to a rather steep curtailment of production brought about by the very profitable prices for coke. In the past week one local steel company furnace has been banked because it could not see paying prices for spot tonnages, while three other furnaces, one in the Pittsburgh district and two in the Youngstown district have been banked to release the coke for sale as a substitute for hard coal. Most of the production lost is in merchant iron and with shipments now running well ahead of production, a lighter supply appears imminent. The possibility of higher coke and ore costs is also influencing producers to take a firmer price stand.

The coke market has weakened in the last few days, but prices still are higher than they were a week ago.

Warmer weather has lessened Eastern demand and it also appears that a good deal of coke which had been delayed in transit has reached the Eastern seaboard. As high as $12 was paid late last week for run-of-oven 48-hr. coke for Eastern shipment, but today $11 is the highest price obtainable.

The scrap market continues to give ground, and about the only support it is getting is from dealers who have unfilled orders and are anxious to cover against them in the fear of getting cancellations.

Pig Iron.—Sales and inquiries have been few and small in this market in the past week, but any tendency there was a week ago toward weaker prices has disappeared as a result of blast furnace suspensions prompted by the high and profitable prices ruling for coke. The Pittsburgh Steel Co. recently banked a furnace and one steel works and one merchant stack in the Youngstown district also have suspended production to take advantage of the present coke market. These furnaces normally produce about 45,000 tons of pig iron a month and two other furnaces which were banked in January produce about 32,000 tons a month. It is believed that this production will be lost to the market so long as coke prices remain up, and as shipments now are running ahead of the merchant output, it looks very much as though the end of this month would see light supplies. Although merchant pig iron producers are not figuring on paying anywhere near the present prices for coke on second quarter contracts, they do not expect to be able to do any better than on first quarter tonnages for which they paid from $3.75 to $4.10. They are also influenced in a firmer price stand by the possibility of higher ore prices, even though an advance would not actually influence costs until well into the summer. The intimations are that ore producers are considering advances of 25c. to 50c. No second quarter iron to speak of has yet been placed, and it is believed that a good deal of such buying will develop in the next few weeks. Sales in the past week have been confined to small lots, and in all cases have brought recent prices.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$20.00
Bessemer	21.00
Gray forge	20.00
No. 2 foundry	20.50
No. 3 foundry	20.00
Malleable	20.50
Low phosphorus, copper free	$28.00 to 28.60

Ferroalloys.—This market does not show much life but prices are holding. In spiegeleisen and the higher grades of ferrosilicon, specifications against contracts are steady. Price firmness is also explained by the fact that makers are well sold against production for at least the first half of the year. Inquiries for ferromanganese run entirely to small lots for early delivery, but even those are not numerous. Prices are given on page 437.

Semi-Finished Steel.—Open market activities have fallen to a low ebb, since all consumers have ample coverage against their requirements for this quarter. Moreover, since business in finished lines has not equalled December expectations, there has not been occasion for supplementary purchases. Quarterly contracts were generally written at $35, Pittsburgh or Youngstown, for large billets and slabs and $36 for sheet bars and small billets and slabs, and it is understood that some business taken at higher prices has been written down to those figures. Those prices still are quotable, but have become asking instead of bid prices as they were in December. A mill that had to move some tonnage might find it hard to do so except at concessions. Forging billets are available at $5 a ton over rolling billets. Wire rods are moving fairly steadily on contracts at $45, base Pittsburgh or Cleveland. Skelp does not appear over strong at 1.90c., with plates in sizable tonnages going as low as 1.80c. Prices are given on page 437.

Wire Products.—There is a fairly steady movement in these products, but demands are not so large as they were expected to be and not straining the capacity of the manufacturers. Stocks in second hands are believed to be light and the trade expects no repetition of last year's experience, when distributers and consumers became so heavily stocked that they did not have to buy much between the end of March and early fall. Observance of quoted prices is good, despite the fact that the country's productive capacity is large in relation to consumptive power. Prices are given on page 435.

Rails and Track Supplies.—Local makers of tie plates are not recognizing the lower price ruling in the Middle West, which they say are for plates rolled from discarded rail material, which naturally can be sold at less than plates made from specification steel. Steady demand is reported for spikes and other track accessories. Some of the Nickel Plate order for between 2000 and 2500 tons of tie plates went to local makers. Local mills do not appear anxious for small spike orders and are not promising very prompt deliveries. Standard rails are moving well against 1926 contracts. Light rails are selling fairly well, but prices are not firmly maintained, as competition is sharp. Prices are given on page 435.

Tubular Goods.—Pipe business still is looking up, more particularly on oil country goods and line pipe, but demand does not begin to tax productive capacity and early deliveries are being promised on all sizes. The leading producer has a somewhat heavier operation than recently because of the big line pipe order reported last week, but the general average of this branch of the industry is not more than 65 per cent of capacity. Reports from the oil industry are still favorable for prospective pipe business. If there were less competition, which means low prices, the boiler tube situation would be fairly satisfactory. Discounts are given on page 435.

Sheets.—More mills than a week ago are taking business in black and galvanized at a recession of $2 a ton, and prices of 3.25c., base Pittsburgh, for black, and 4.50c., base, for galvanized, are becoming more representative of the market than higher quotations. Makers of automobile body sheets generally have gone to 4.40c., base, (No. 22 gage), and the market is no longer quotable above that price. It is not clear that much business has come out as a result of that decline; few, if any, of the body building companies have contracts for this quarter, and the automobile industry has not yet struck the producing stride it was expected to reach by this time. All producers have not yet made the cut in the ordinary finishes. The American Sheet & Tin Plate Co. is holding to its recent prices and reports orders at those figures. Its shipments in January were the largest of any January since 1917. All companies shipped well last month, but with only a few did incoming business equal the shipments. There has been a considerable decline in production, which now is not more than 75 per cent of capacity. Prices are given on page 435.

Tin Plate.—There has been no change in the situation. All makers are well provided with business, and specifications are coming along so well that most makers can look ahead well into the spring to find the end of their present obligations. There is better engagement of tin plate making capacity than usual at this time of the year.

Cold-Finished Steel Bars and Shafting.—The fact that the automotive industry is the principal outlet for these lines and that automobile building is yet to strike the stride expected at this time, means rather quiet times for producers, but there is no weakening in prices. On ordinary tonnages, the market still is quotable at 2.50c., base Pittsburgh.

Bolts, Nuts and Rivets.—Large consumers continue to be quoted $2.50, base per 100 lb., on large rivets, and even lower has been done in the past week on some business attractive in size or because it carried large extras. The market, however, is somewhat firmer than it has been, as those who have been making the lowest prices are now well obligated and are lengthening out their delivery promises. Bolts and nuts are moving steadily and the more common report is that shipments are running ahead of last month. Prices and discounts are given on page 437.

Prices of Finished Iron and Steel Products (Carload Lots)

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mills	2.00c.
F.o.b. Chicago	2.10c.
Del'd Philadelphia	2.32c. to 2.42c.
Del'd New York	2.34c. to 2.44c.
Del'd Cleveland	2.19c.
F.o.b. Birmingham	2.15c. to 2.25c.
C.i.f. Pacific ports	2.35c.
F.o.b. San Francisco mills	2.35c. to 2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills	2.00c.

Rail Steel

F.o.b. mill	1.80c. to 1.90c.
F.o.b. Chicago	2.00c.

Iron

Common iron, f.o.b. Chicago	2.00c.
Refined iron, f.o.b. P'gh mills	3.00c.
Common iron, del'd Phila'phia	2.22c.
Common iron, del'd New York	2.24c.

Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mill	1.80c. to 1.90c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.00c. to 2.10c.
Del'd Cleveland	1.99c. to 2.09c.
Del'd Philadelphia	2.07c. to 2.12c.
Del'd New York	2.09c. to 2.14c.
C.i.f. Pacific ports	2.30c.

Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mill	1.90c. to 2.00c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.05c. to 2.15c.
Del'd Cleveland	2.09c. to 2.19c.
Del'd Philadelphia	2.22c. to 2.32c.
Del'd New York	2.24c. to 2.34c.
C.i.f. Pacific ports	2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
All gages, narrower than 6 in., P'gh	2.50c.
All gages, 6 in. and wider, P'gh	2.30c.
All gages, 6 in. and narrower, Chicago	2.60c.
All gages, wider than 6 in., Chicago	2.50c.

Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills	2.50c.
Bars, f.o.b. Chicago	2.50c.
Bars, Cleveland	2.55c.
Shafting, ground, f.o.b. mill	*2.70c. to 3.00c.
Strips, f.o.b. Pittsburgh mills	3.90c.
Strips, f.o.b. Cleveland mills	3.90c.
Strips, delivered Chicago	4.20c.
Strips, f.o.b. Worcester mills	4.05c.

*According to size.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails	$2.65
Galv'd nails, 1-in. and longer	4.65
Galv'd nails, shorter than 1 in.	4.90
Galvanized staples	3.35
Polished staples	3.10
Cement coated nails	2.65

	Base Per 100 Lb.
Bright plain wire, No. 9 gage	$2.50
Annealed fence wire	2.65
Spring wire	3.50
Galv'd wire, No. 9	3.10
Barbed wire, galv'd	3.35
Barbed wire, painted	3.10

Chicago district mill and delivered Chicago prices are $1 per ton above the foregoing. Birmingham mill prices $3 a ton higher; Worcester, Mass., mill $3 a ton higher on production of that plant; Duluth, Minn., mill $2 a ton higher; Anderson, Ind., $1 higher.

Woven Wire Fence

	Base to Retailers Per Net Ton
F.o.b. Pittsburgh	$65.00
F.o.b. Cleveland	65.00
F.o.b. Anderson, Ind.	66.00
F.o.b. Chicago district mills	67.00
F.o.b. Duluth	68.00
F.o.b. Birmingham	68.00

Sheets

Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. Pittsburgh	2.50c.
Nos. 9 and 10, f.o.b. Ch'go dist. mills	2.60c.
Nos. 9 and 10, del'd Phila'phia	2.82c.

Box Annealed, One Pass Cold Rolled

No. 28, f.o.b. Pittsburgh	3.25c. to 3.35c.
No. 28, f.o.b. Ch'go dist. mill	3.45c.
No. 28, del'd Phila'phia	3.67c.

Galvanized

No. 28, f.o.b. Pittsburgh	4.50c. to 4.60c.
No. 28, f.o.b. Chicago dist. mill	4.70c.
No. 28, del'd Philadelphia	4.92c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	3.35c.
No. 28, f.o.b. Chicago dist. mill	3.45c.

Automobile Body Sheets

No. 22, f.o.b. Pittsburgh	4.40c.

Long Ternes

No. 28, 8-lb. coating, f.o.b. mill	4.85c.

Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills	$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.	5.60

Terne Plate

(*F.o.b. Morgantown or Pittsburgh*)

(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.40
8-lb. coating I.C.	11.70
15-lb. coating I.C.	14.85
20-lb. coating I.C.	$16.20
25-lb. coating I.C.	17.90
30-lb. coating I.C.	19.45
40-lb. coating I.C.	21.65

Alloy Steel Bars

(F.o.b. Pittsburgh or Chicago)

S. A. E. Series Numbers		Base Per 100 Lb.
2100*	(1½% Nickel, 0.10% to 0.20% Carbon)	$3.20 to $3.25
2300	(3½% Nickel)	4.50 to 4.60
2500	(5% Nickel)	5.70 to 5.80
3100	(Nickel Chromium)	3.50 to 3.60
3200	(Nickel Chromium)	5.00 to 5.25
3300	(Nickel Chromium)	7.00 to 7.25
3400	(Nickel Chromium)	6.25 to 6.50
5100	(Chromium Steel)	3.50
5200*	(Chromium Steel)	7.00 to 7.50
6100	(Chrom. Vanadium bars)	4.20 to 4.30
6100	(Chrom. Vanad. spring steel)	3.80
9250	(Silicon Manganese spring steel)	3.20 to 3.25
	Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.)	4.10 to 4.20
	Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)	4.45 to 4.55
	Chromium Molybdenum bars (0.80—1.10 Chrom., 0.25—0.40 Molyb.)	4.25 to 4.35
	Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.)	3.40 to 3.50
	Chromium Molybdenum spring steel (1—1.25 Chrom., 0.30—0.50 Molybdenum)	4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Rails

	Per Gross Ton
Standard, f.o.b. mill	$43.00
Light (from billets), f.o.b. mill	$36.00 to 37.00
Light (from rail steel), f.o.b. mill	34.00 to 35.00
Light (from billets), f.o.b. Ch'go mill	36.00 to 38.00

Track Equipment

(F.o.b. Mill)

	Base Per 100 Lb.
Spikes, ⅝ in. and larger	$2.80 to $3.10
Spikes, ½ in. and smaller	3.00 to 3.50
Spikes, boat and barge	3.25
Track bolts, all sizes	4.00 to 4.50
Tie plates, steel	2.25
Angle bars	2.75

Welded Pipe

Base Discounts f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	19½	⅛ to ⅜	+11	+39
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½	30	13
1 to 3	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	28	13
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	¼ to ⅜	+19	+54
¼ to ⅜	47	30½	½	21	7
½	58	42½	¾	28	12
¾	58	47½	1 to 1½	30	14
1 to 1½	60	49½			
2 to 3	61	50½			

Lap Weld, extra strong, plain ends

2	53	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1½ points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2½%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2 to 2¼ in.	27	1½ in.	+18
2½ to 2¾ in.	37	1¾ to 1⅞ in.	+ 8
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3¾ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	46	3¼ to 4½ in.	— 9

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 to 3 tens on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1¼ to 1½ in.	52	3¼ to 3½ in.	47
1¾ in.	36	4 in.	50
2 to 2¼ in.	31	4½, 5 and 6 in.	45
2½ to 2¾ in.	39		

Hot Rolled

2 and 2¼ in.	34	3½ and 3½ in.	50
2½ and 2¾ in.	42	4 in.	53
3 in.	48	4½, 5 and 6 in.	49

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

	Per Cent Off List
Carbon, 0.10% to 0.30%, base	50 to 55
Carbon, 0.30% to 0.40%, base	45 to 50

Plus differentials for lengths over 18 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.

Steel and Iron Bars.—There is a steady call for steel bars and specifications also are coming out constantly, but combined demands are not taxing production capacity to any marked extent and most makers now are making relatively prompt shipments on almost all sizes. Producers find some resistance to prices above 2c., base Pittsburgh. Iron bars also are selling steadily, and the market is holding well at 3c., base Pittsburgh, for refined grade. Prices are given on page 435.

Structural Steel.—Local fabricating shops have had a good week, with a total of about 8000 tons of structural work and more than 3500 tons of steel barges. On the whole, there is considerable satisfaction over fabricated steel business taken so far this year, and with the mills getting heavier specifications for plain material, deliveries are not promised quite so promptly as a short time ago. The market on large shapes is still quotable at 1.90c. to 2c., base Pittsburgh, according to the size of the tonnage.

Plates.—Although many consuming districts are running well and taking good tonnages, the incoming business is not equal to shipments and makers are rather anxious for fresh commitments. In this immediate territory the market appears to be 1.85c. to 1.90c., base Pittsburgh, but mills are finding it necessary to go as low as 1.80c. on really attractive tonnages, and to reach the more distant points in the natural Pittsburgh selling area to meet competitive prices. Barge business promises to take many plates this year; so far this year orders for 58 barges, taking 13,500 tons of plates, have been placed with builders in this district. Prices are given on page 435.

Hot-Rolled Flats.—The demand for hoops, bands and strips is steady, rather than active, but production is being kept well within the limits of live business and prices are holding firmly at recent levels.

Cold-Rolled Strips.—The automobile industry is not yet producing cars freely, and its comparatively moderate takings of steel affect the movement of this product. The price is held well at 3.90c., base Pittsburgh or Cleveland.

Old Material.—There is so little business in this market that only an appraisal of prices is possible. Heavily melting steel is offered at $18, but there seem to be no takers and it is probable that $17.50 is all that could be obtained on the small lots that are coming out and the sale of which is establishing such market as exists. No large tonnages can be bought at present prices; producers are disposed to hold rather than sell at present prices, and short sales at these levels are regarded as dangerous by dealers. The Norfolk & Western is taking bids until noon Feb. 10, on 5164 gross tons of old material.

We quote for delivery to consumer's mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton	
Heavy melting steel	$17.50 to $18.00
No. 1 cast, cupola size	$17.00 to 17.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	20.00 to 21.00
Compressed sheet steel	16.50 to 17.00
Bundled sheets, sides and ends	15.50 to 16.00
Railroad knuckles and couplers	20.50 to 21.00
Railroad coil and leaf springs	20.50 to 21.00
Low phosphorus blooms and billet ends	22.00 to 22.50
Low phosphorus plates and other material	21.00 to 21.50
Low phosphorus punchings	20.00 to 20.50
Railroad malleable	18.50 to 19.00
Steel car axles	21.00 to 21.50
Cast iron wheels	18.00 to 18.50
Rolled steel wheels	20.50 to 21.00
Machine shop turnings	14.00 to 14.50
Short shoveling turnings	14.50 to 15.00
Sheet bar crops	20.00 to 20.50
Heavy steel axle turnings	16.50 to 17.00
Short mixed borings and turnings	14.50 to 15.00
Heavy breakable cast	16.00 to 16.50
Stove plate	14.00 to 14.50
Cast iron borings	14.50 to 15.00
No. 1 railroad wrought	14.00 to 14.50
No. 2 railroad wrought	17.50 to 18.00

Coke and Coal.—The market advanced further following the report of a week ago, going as high as $12 for run-of-oven furnace coke, $13 for foundry coke, and $14.50 for mechanically prepared domestic coke. Prices, however, have since eased off, due to a lighter demand and the arrival of considerable coke which had been delayed in transit. The market today is not quotable at over $10.50 to $11 for run-of-oven 48-hr. coke, and a corresponding decline is noted in other grades. So long as the hard coal suspension continues and there is any cold weather, a strong market is looked for in domestic coke, and it is the domestic demand that is making the prices on coke for metallurgical use. The domestic sizes of soft coal are in fair demand, but ample supplies keep prices low, and there is an abundance of industrial coal, particularly slack grade, with prices entirely favorable to buyers.

Specifying Weights on Blueprints of Castings

A conference with a view of securing the adoption of the practice of specifying weights on blueprints of castings will be called by W. Chattin Wetherill, director metals utilization, Department of Commerce, according to an announcement in a recent bulletin of the Ohio State Foundrymen's Association. Some time ago a movement was inaugurated to make it a general custom, if not a requirement, for buyers of castings when sending out blueprints for estimates to specify the weight of the casting as estimated by the engineer of the company which will use the castings in its product. The plan has the advantage of permitting a discussion of price in case a foundry's estimate of the weight of the casting does not agree with the weight as estimated by the designing engineer.

Heat Transfer in Blast Furnace

The most important function of the ascending gas in the iron blast furnace is probably the reduction of the ore to metal. The gas, however, has a second duty to perform, the heating of the descending solids. The physics of this heat transfer from gas to colder solid particles is being investigated by the United States Bureau of Mines, with the view that furnace designers may know how best to satisfy the thermal requirements of the blast furnace process.

Preliminary experiments at the North Central experiment station of the Bureau, at Minneapolis, have shown that the coefficient of thermal transmission is high and depends upon the screen-size, the rate of flow, the percentage of voids between particles, and the temperature. In general, heat transmission is a function of the physical properties of the ore mass similar somewhat to the rate of reduction and to the pressure drop experienced by the gas flowing through the ore. The three interrelated problems depend directly upon the mechanics of the molecular contact at the interface between the gas and solid phases.

Following the installation of a mixed pressure turbine generator, the Henry Vogt Machine Co., Louisville, Ky., saved $39,660 a year on the cost of generating power as compared with results obtained with the previous equipment. Steam is generated by boilers both for the turbine and for forging hammers, the exhaust steam from the latter not having been utilized by the former power plant. With the present installation, exhaust steam from forging hammers and air compressor is fed to the second stage of a three-stage 750-kw. General Electric turbine.

"Machinery Markets of Brazil" are discussed in a booklet published by the Department of Commerce, Washington. The author is M. A. Cremer, assistant trade commissioner, Rio de Janiero. Various types of machinery are considered separately in this booklet and essential information relative to advertising, customs duties, exchange, etc., is included in the report, which may be obtained from the Superintendent of Documents, Government Printing Office, Washington or any district office of the Bureau of Foreign and Domestic Commerce, for 10 cents per copy.

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Semi-Finished Steel

F.o.b. Pittsburgh or Youngstown

Billets and Blooms

	Per Gross Ton
Rolling, 4-in. and over	$35.00
Rolling, 2-in. and smaller	36.00
Forging, ordinary	40.00
Forging, guaranteed	45.00

Sheet Bars

	Per Gross Ton
Open-hearth or Bessemer	$36.00

Slabs

	Per Gross Ton
8 in. x 2 in. and larger	$35.00
6 in. x 2 in. and smaller	36.00

Skelp

	Per Lb.
Grooved	1.90c.
Sheared	1.90c.
Universal	1.90c.

Wire Rods

	Per Gross Ton
*Common soft, base, No. 5 to ⅜-in.	$45.00
Common soft, coarser than ⅜-in.	$2.50 over base
Screw stock	$5.00 per ton over base
Carbon 0.20% to 0.40%	3.00 per ton over base
Carbon 0.41% to 0.55%	5.00 per ton over base
Carbon 0.56% to 0.75%	7.50 per ton over base
Carbon over 0.75%	10.00 per ton over base
Acid	15.00 per ton over base

*Chicago mill base is $46. Cleveland mill base, $45.

Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

	Per Gross Ton
Old range Bessemer, 51.50% iron	$4.55
Old range non-Bessemer, 51.50% iron	4.40
Mesabi Bessemer, 51.50% iron	4.40
Mesabi non-Bessemer, 51.50% iron	4.25
High phosphorus, 51.50% iron	4.15

Foreign Ore, c.i.f. Philadelphia or Baltimore

	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algerian	9.50c. to 10c.
Iron ore, Swedish, average 66% iron	9.50c.
Manganese ore, washed, 51% manganese, from the Caucasus	45c.
Manganese ore, Brazilian or Indian, nominal	42c. to 44c.
Tungsten ore, high grade, per unit, in 60% concentrates	$12.50 to $14.00
	Per Ton
Chrome ore, Indian basic, 48% Cr_2O_3, crude, c.i.f. Atlantic seaboard	$22.00to $23.00
	Per Lb.
Molybdenum ore, 85% concentrates of MoS_2, delivered	55c. to 60c.

Coke

	Per Net Ton
Furnace, f.o.b. Connellsville prompt	$10.50 to $11.00
Foundry, f.o.b. Connellsville prompt	11.50 to 12.00
Foundry, by-product, Ch'go ovens	10.50
Foundry, by-product, New England, del'd	13.00
Foundry, by-product, Newark or Jersey City, delivered	11.52
Foundry, Birmingham	5.75 to 6.50
Foundry, by-product, St. Louis or Granite City	10.00

Coal

	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines	$1.50 to $2.10
Mine run coking coal, f.o.b. W. Pa. mines	1.90 to 2.25
Mine run gas coal, f.o.b. W. Pa. mines	2.00 to 2.25
Steam slack, f.o.b. W. Pa. mines	1.00 to 1.15
Gas slack, f.o.b. W. Pa. mines	1.25

Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd	$115.00
Foreign, 80%, Atlantic or Gulf port, duty paid	115.00

Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%	$32.00 to $34.00
Domestic, 16 to 19%	$1.00 to $3.00

Electric Ferrosilicon

	Per Gross Ton Delivered
50%	$85.00
75%	145.00

	Per Gross Ton Furnace		*Per Gross Ton Furnace*
10%	$42.00	12%	$42.00
11%	42.00	14 to 16%	$45 to 46.00

Bessemer Ferrosilicon

F.o.b. Jackson County, Ohio, Furnace

	Per Gross Ton		*Per Gross Ton*
10%	$36.00	12%	$40.00
11%	38.00		

Silvery Iron

F.o.b. Jackson County, Ohio, Furnace

	Per Gross Ton		*Per Gross Ton*
6%	$28.50	10%	$34.00
7%	29.50	11%	36.00
8%	30.50	12%	38.00
9%	32.00		

Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd	$1.15 to $1.20
Ferrochromium, 4% carbon and up, 60 to 70% Cr., per lb. contained Cr. delivered	11.50c.
Ferrovanadium, per lb. contained vanadium, f.o.b. furnace	$3.25 to $4.00
Ferrocarbontitanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads	$200.00
Ferrophosphorus, electrolytic, or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton	$91.00
Ferrophosphorus, electrolytic, 24%, f.o.b. Anniston, Ala., per net ton	$122.50

Fluxes and Refractories

Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines	$17.00 to $17.50
No. 2 lump, Illinois and Kentucky mines	$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid,	$17.00 to $17.50
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines	$32.50

Fire Clay

	Per 1000 f.o.b. Works	
	High Duty	Moderate Duty
Pennsylvania	$43.00 to $46.00	$40.00 to $43.00
Maryland	48.00 to 50.00	43.00 to 45.00
Ohio	43.00 to 46.00	40.00 to 43.00
Kentucky	43.00 to 45.00	40.00 to 43.00
Illinois	43.00 to 45.00	40.00 to 43.00
Missouri	40.00 to 43.00	35.00 to 38.00
Ground fire clay, per ton	6.50 to	7.50

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania	$40.00
Chicago	49.00
Birmingham	54.00
Silica clay, per ton	$8.00 to 9.00

Magnesite Brick

	Per Net Ton
Standard size, f.o.b. Baltimore and Chester, Pa.	$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.	40.00

Chrome Brick

	Per Net Ton
Standard size	$48.00

Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

	Per Cent Off List
Machine bolts, small, rolled threads	60, 10 and 5
Machine bolts, all sizes, cut threads,	50, 10, 10 and 5
Carriage bolts, smaller and shorter, rolled threads	50, 10, 10 and 5
Carriage bolts, cut threads, all sizes	50, 10 and 5
Eagle carriage bolts	65 and 10
Lag bolts	60, 10, 10 and 5
Plow bolts, Nos. 3 and 7 heads	50 and 10
(Extra of 20% for other style heads)	
Machine bolts, c.p.c. and t. nuts, ⅝ x 4 in.,	45, 10 and 10
Larger and longer sizes	45, 10 and 10
Bolt ends with hot-pressed nuts	50, 10, 10 and 5
Bolt ends with cold-pressed nuts	45, 10 and 10
Hot-pressed nuts, blank and tapped, square,	4.25c. off list
Hot-pressed nuts, blank or tapped, hexagons,	4.65c. off list
C.p.c. and t. square or hex. nuts, blank or tapped	4.35c. off list
Washers*	6.50c. to 6.25c. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage and lag bolts is 5 per cent less than above for less than car lots. On hot-pressed and cold-punched nuts the discount is 25c. less per 100 lb. than quoted above for less than car lots.

Bolts and Nuts

(Quoted with actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Semi-finished hexagon nuts:	
⅞ in. and smaller, U. S. S.	80, 10 and 5
1 in. and larger, U. S. S.	75, 10 and 5
Small sizes, S. A. E.	80, 10, 10 and 5
S. A. E., ⅝ in. and larger	75, 10, 10 and 5
Stove bolts in packages	80, 10 and 5
Stove bolts in bulk	80, 10, 5 and 2½
Tire bolts	60 and 5

Semi-Finished Castellated and Slotted Nuts

(Actual freight allowed up to but not exceeding 50c. per 100 lb.)

(To jobbers and consumers in large quantities)

	Per 100 Net S.A.E.	Per 100 Net U.S.S.		Per 100 Net S.A.E.	Per 100 Net U.S.S.
¼-in.	$0.44	$0.44	⅝-in.	$2.35	$2.40
5/16-in.	0.515	0.515	⅞-in.	3.60	3.60
⅜-in.	0.62	0.66	1-in.	5.65	5.80
7/16-in.	0.79	0.90	1⅛-in.	8.90	8.90
½-in.	1.01	1.05	1¼-in.	12.60	18.10
9/16-in.	1.38	1.42	1⅜-in.	18.35	18.35
⅝-in.	1.70	1.73	1½-in.	21.00	21.00

Larger sizes.—Prices on application.

Large Rivets

	Base Per 100 Lb.
F.o.b. Pittsburgh	$2.50 to $2.60
F.o.b. Cleveland	2.70
F.o.b. Chicago	2.75

Small Rivets

	Per Cent Off List
F.o.b. Pittsburgh	70 and 10
F.o.b. Cleveland	70 and 10
F.o.b. Chicago	70 and 10 to 70 and 5

Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Milled cap screws	80 and 10
Milled standard set screws, case hardened	80
Milled headless set screws, cut thread	80
Upset hex. head cap screws, U. S. S. thread,	80, 10 and 10
Upset hex. cap screws, S. A. E. thread,	80 and 10
Upset set screws	80, 10 and 10 to 80, 10 and 5
Milled studs	70 and 5

Chicago

Steel Output Gains—Fresh Rail and Car Business—Merchant Stack Put Out

CHICAGO, Feb. 9.—Rail bookings of Chicago makers have been expanded to the extent of 20,000 tons, 14,000 tons of which were placed by the Cotton Belt. The New York Central has taken up its rail option in entirety, thus bringing an additional 30,000 tons of standard sections and 2000 tons of angle bars to local mills. Specifications continue liberal and rail mills are operating at capacity.

Bookings of finished steel slightly exceed shipments, and specifications, particularly for soft steel bars, are liberal. January bar business was about 25 per cent below that for December, but a comparison of the past month with the corresponding period a year ago shows a gain in both new business and specifications. A distinct improvement is noted in the demand for universal mill plates, on which deliveries by local mills have become so extended that Eastern makers have been able to book tonnage in this market on promises of two weeks' shipment.

Chicago mills obtained a liberal share of the steel for 8400 freight cars placed during January. Thus far in February 4043 cars have been placed in this district, and it is hoped that the 6000 cars still on inquiry by railroads operating in this territory will also be bought this month.

The leading interest has increased operations to slightly better than 89 per cent of ingot capacity. Steel works blast furnace operations are unchanged. Merchant pig iron makers have blown out a Federal furnace for repairs, it being reported that the stack will be down for at least 30 days. The active merchant furnaces in the district include two Iroquois, one Federal, one Mayville, the Zenith stack and the Thomas furnace.

Recent recessions in scrap prices have not checked the downward movement of the old material market.

Pig Iron.—Merchant stack operations have been further curtailed by the blowing out of a Federal furnace. This move, it is said, was forced by the necessity for repairs. The stack may come in again within 30 to 60 days. This is the second merchant furnace to go down since the first of the year, but this cannot be taken as a fair measure of demand since an Indiana Harbor furnace of the Youngstown Sheet & Tube Co. is supplying pig iron to the trade. The past week has been quiet, although prices are being maintained. On the basis of the new furnace schedules, shipments are slightly in excess of production. Current specifications are not so heavy as during the previous week, it being apparent that users are finding that past deliveries are lasting longer than had been expected. A Chicago district user is inquiring for 1000 tons of foundry iron for delivery during the second quarter. A farm implement maker in southern Wisconsin has bought 1500 tons of foundry and malleable iron at $23, base local furnace. A few carlot sales of silvery are reported at $30.50, furnace, for the 8 per cent grade. Several sales of charcoal iron were made at $29.04, delivered.

Quotations on Northern foundry, high phosphorus and malleable iron are f.o.b. local furnaces, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25	$23.00
Northern No. 1 foundry, sil. 2.25 to 2.75	23.50
Malleable, not over 2.25 sil.	23.00
High phosphorus	23.00
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (all rail)	$27.01 to 28.01
Southern No. 2 (barge and rail)	26.18 to 27.18
Low phos., sil. 1 to 2 per cent, copper free	31.20 to 31.70
Silvery, sil. 8 per cent	35.29
Ferrosilicon, 14 to 16 per cent	48.79

Ferroalloys.—The demand for spiegeleisen is light, but the market is strong, due to the well sold condition of producers. The 16 to 19 per cent grade is quoted at $33, base furnace, and no 19 to 22 per cent material is being offered. Several small sales of ferromanganese are reported at $115, seaboard, or $122.56, delivered at Chicago. Fifty per cent ferrosilicon is unchanged at $85, delivered, and specifications against past obligations are said to be liberal.

We quote 80 per cent ferromanganese, $122.56, delivered Chicago; 50 per cent ferrosilicon, $85, delivered; spiegeleisen, 18 to 22 per cent, $41.76, delivered Chicago.

Sheets.—New business in sheets is lagging, although specifications are fairly liberal and mill operations are unchanged. Chicago delivered prices from mill are holding at 3.50c. for black, 2.65c. for blue annealed, and 4.75c. for galvanized.

Chicago delivered prices from mill are 3.50c. for No. 28 black, 2.65c. for No. 10 blue annealed and 4.75c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Jobbers quote f.o.b. Chicago: 3.50c. base for blue annealed, 4.10c. base for black, and 5.25c. base for galvanized.

Bars.—The demand for soft steel bars is unusually good, and although the actual tonnage placed in January was about 25 per cent less than in December, it was considerably larger than bookings in January, 1925. Both new business and specifications are said to be running ahead of shipments. The Chicago mill price on soft steel bars is firm at 2.10c. Alloy steel bars are still in good demand, and prices are firm and unchanged. The bar iron market has had another quiet week, with only a few small orders added to makers' books. Specifications against past obligations are said to be liberal. The price of 2c., Chicago, is steady. Demand for rail steel bars is gradually expanding and unfilled orders show further gains over shipments, which are now not better than 30 days. One producer continues to operate on double turn and another mill which has been on single turn for some time, is considering going on double turn. The fence post industry continues to draw heavily upon hard bar mills, and the demand of the reinforcing bar benders has been unusually good throughout the winter months. Rail steel bars are unchanged at 2c., Chicago.

Mill prices are: Mild steel bars, 2.10c., Chicago; common bar iron, 2c., Chicago; rail steel bars, 2c. Chicago.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.60c. for rounds and hexagons and 4.10c. for flats and squares; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.60c., Chicago warehouse.

Rails and Track Supplies.—Railroads continue to press mills for rails and track supplies. New business for the week totaled 20,000 tons of rails in miscellaneous lots and 4000 tons of angle bars. Included in the rail tonnage is 14,000 tons of standard sections placed chiefly in the Chicago district by the Cotton Belt. The Wabash order for tie plates was distributed as follows: 520,000 tie plates to the Illinois Steel Co., 280,000 to the Inland Steel Co., 100,000 to the Scullin Steel Co., 100,000 to the Interstate Iron & Steel Co. The New York Central has taken up its entire rail option, thus bringing approximately 30,000 additional tons to this district. Local makers will also supply an additional 2000 tons of angle bars. Steel tie plates are now quoted at $45 per ton, or 2.25c. per lb., f.o.b. mill.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, $36 to $38 per gross ton, f.o.b. maker's mill.

Standard railroad spikes, 2.90c. to 3c., mill; track bolts with square nuts, 3.90c. to 4c., mill; steel tie plates, 2.25c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of Chicago warehouse at 3.55c., base, and track bolts, 4.55c., base.

Cast Iron Pipe.—The Chicago market is not active so far as new buying is concerned, but specifications are liberal. Prices are unchanged at $41 to $42, base Birmingham, for 6-in. and larger pipe. It is said that Albion, Ill., will readvertise and take new bids about Feb. 15. John M. Monie, St. Louis, has been awarded the general contract for 300 tons by Toledo, Ill. It is reported here that St. Louis closed with the National Cast Iron Pipe Co. for 1200 tons of 3-in. to 12-in. at a

price of $41, base Birmingham. The remainder of the order, amounting to 2400 tons of 20-in. and 36-in. was awarded to the United States Cast Iron Pipe & Foundry Co. at $40, base Birmingham. Harvey, Ill., is inquiring for 600 tons in miscellaneous sizes and Rockford, Ill., will take bids Feb. 15 on 700 tons of 6 to 24-in. Class B pipe and 50 tons of fittings.

We quote per net ton, delivered Chicago, as follows: Water pipe, 4-in., $54.20; 6-in. and over, $49.20 to $50.20; Class A and gas pipe, $4 extra.

Bolts, Nuts and Rivets.—Specifications are heavier than during the corresponding period of last year. The price situation remains unchanged. For discounts and prices see page 437.

Jobbers quote structural rivets, 3.50c. per lb.; boiler rivets, 3.70c. per lb.; machine bolts up to ⅝ x 4 in., 50 and 5 per cent off; larger sizes, 50 and 5 off; carriage bolts up to ⅝ x 4, 47½ off; larger sizes, 47½ off; hot-pressed nuts, square, tapped or blank, $3.25 off; hot-pressed nuts, hexagon, tapped or blank, $3.75 off; coach or lag screws, 55 and 5 per cent off.

Wire Products.—Railroads throughout the country are said to have contracted heavily for the first and, in some instances, the second quarter, and are now issuing liberal specifications. General merchandising, as a whole, is reported as good, and the trade, with fair stocks, is ordering just enough wire products to meet the current demand. In the South and Southwest business is reported as satisfactory, while in the Northwest demand has not as yet developed to any great extent. Specifications from the manufacturing trade are about equal to those of the previous week. Mills continue to operate at close to 70 per cent of capacity. Prices, as a rule, are firmer. They are shown on page 435.

We quote warehouse prices f.o.b. Chicago: No. 8 black annealed wire, $3.30 per 100 lb.; common wire nails, $3.05 per keg; cement-coated nails, $2.05 to $2.20 per count keg.

Cold-Rolled Strips.—Demand has improved slightly after having slackened in the latter part of December and in January when automobile manufacturers curtailed production. Mill operations are again up to 90 per cent, and the price of 3.90c., Cleveland, or 4.20c., Chicago, is firm.

Structural Material.—Shops in the Chicago district are well booked and fabricators are looking forward to better prices for their work. At the moment a general average will strike close to $68 or $70 per ton, delivered, although one contract was recently closed for light plate girder and I-beam bridge spans at a reported price of $62 per ton. New inquiries for the week were in good volume, and new business booked by the mills is well maintained. Architects are reported busy, particularly on apartment buildings, hotels and theaters. Just how far these projects will develop, however, is open to some doubt at this time, since bonding houses are said to be tightening up on loans for building purposes.

The mill quotation on plain material is 2.10c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Plates.—Fully 40,000 tons of plates, shapes and bars will be supplied by Chicago mills for 4043 refrigerator cars placed with Mid-Western car builders by the Pacific Fruit Express. One thousand additional refrigerator cars, placed by the same company, will be constructed on the Pacific Coast, and local steel makers do not expect to participate in the 10,000 tons of steel required. A Chicago mill has booked 2500 tons of car repair material for the Southern Railway. Inquiries for oil storage tanks are light, totaling 3000 tons. A current inquiry calls for 1100 tons of plates for a gas holder to be built in Pennsylvania. Deliveries from local universal plate mills have extended with the result that Eastern makers, quoting 1.85c., base Pittsburgh, or 2.19c., delivered Chicago, are entering this market with promises of two to three weeks' shipment. Sheared plates are not in as good demand and deliveries from local mills are satisfactory to the trade. The Chicago mill price of 2.10c. is unchanged, although competition remains keen in neutral districts.

The mill quotation is 2.10c., Chicago. Jobbers quote 3.10c. for plates out of stock.

Reinforcing Bars.—Lettings during the week were not heavy, although showing some improvement over the previous seven days. The total bookings of billet steel bars were not in excess of 1200 tons, a substantial portion of which consisted of a comparatively large number of small tonnage projects. New projects are coming out more rapidly, and dealers are busy preparing estimates. The open weather which has prevailed throughout this section has aided contractors in maintaining construction schedules, and dealers are shipping heavily against past obligations. Plans are under way by the Union Stock Yards & Transit Co., Chicago, for a new hog house, which will require over 1000 tons of bars. The Chicago warehouse price of 2.60c. for billet steel reinforcing bars is steady. Contracts recently awarded and new inquiries are shown on page 449.

Coke.—Foundry grades are still in good demand, and prices are unchanged at $10.50, ovens, or $11, delivered in the Chicago switching district. Domestic grades are being eagerly sought and within the past 10 days one Chicago producer has shipped 275 cars to the Atlantic seaboard.

Old Material.—Lower prices are again the rule in the scrap market, and dealers are pessimistic as to any favorable turn in the immediate future. Heavy melting steel has declined 50c. a ton, bringing it to $13.75 to $14.25 per gross ton, delivered in consumers' yards. For the most part, users of this commodity are remaining out of the market, but when requirements necessitate it, are buying direct from yards at the lower quotation. Smaller consumers are buying from hand-to-mouth, often running with only 10 days' supply in stock. When their requirements are pressing, they enter the market and demand immediate shipment. It is believed in some quarters that many dealers are selling as a speculative move in the belief that the market will recede still further. There is still a fair demand for low phosphorus specialties, with the supply absorbed practically as fast as it appears on track. Offerings, however, are liberal, driving the prices of these grades down concurrently with the recession of the market as a whole. Advertised railroad lists are light, and include 1000 tons offered by the Chicago & Eastern Illinois and 2200 tons by the Chicago & Alton.

We quote delivered in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

Per Gross Ton

Iron rails	$17.50 to $18.00
Cast iron car wheels	17.00 to 17.50
Relaying rails, 56 lb. to 60 lb.	25.00 to 26.00
Relaying rails, 65 lb. and heavier	26.00 to 31.00
Forged steel car wheels	18.00 to 18.50
Railroad tires, charging box size	18.00 to 18.50
Railroad leaf springs, cut apart	18.00 to 18.50
Rails for rolling	16.50 to 17.00
Steel rails, less than 3 ft.	17.50 to 18.00
Heavy melting steel	13.75 to 14.25
Frogs, switches and guards, cut apart	15.50 to 16.00
Shoveling steel	13.75 to 14.00
Drop forge flashings	11.00 to 11.50
Hydraulic compressed sheets	12.25 to 12.75
Axle turnings	15.00 to 15.50
Steel angle bars	17.00 to 17.50
Steel knuckles and couplers	17.00 to 17.50
Coil springs	18.50 to 19.00
Low phos. punchings	16.50 to 17.00
Machine shop turnings	8.75 to 9.25
Cast borings	12.00 to 12.50
Short shoveling turnings	12.00 to 12.50
Railroad malleable	17.50 to 18.00
Agricultural malleable	16.50 to 17.00

Per Net Ton

Iron angle and splice bars	15.75 to 16.25
Iron arch bars and transoms	20.50 to 21.00
Iron car axles	25.00 to 25.50
Steel car axles	17.50 to 18.00
No. 1 busheling	11.00 to 11.50
No. 2 busheling	8.75 to 9.25
Pipes and flues	10.00 to 10.50
No. 1 railroad wrought	12.75 to 13.25
No. 2 railroad wrought	12.25 to 12.75
No. 1 machinery cast	17.00 to 17.50
No. 1 railroad cast	15.50 to 16.00
No. 1 agricultural cast	15.50 to 16.00
Locomotive tires, smooth	16.50 to 17.00
Stove plate	14.50 to 15.00
Grate bars	13.00 to 13.50
Brake shoes	12.00 to 12.50

Birmingham

Pig Iron Buying Hesitant—Ensley Stack Goes Out—Plates Decline

BIRMINGHAM, Feb. 9.—Inquiries for pig iron are more numerous and more sales for second quarter delivery being made, but buying cannot yet be described as active. The blowing out of an Ensley furnace for repairs has reduced the output of basic iron, but production of foundry iron is being maintained. The foundry market appears to have passed largely into the hands of the three companies which make foundry iron exclusively, a fact which should strengthen their position considerably. These three interests have 13 blast furnaces on foundry. One other furnace will make foundry iron this month, but only a portion of the output will go on the open market. The melt of pig iron in this territory is showing improvement, though makers of soil pipe and fittings, as well as jobbing foundries, complain of a lack of new business. Inquiries for small tonnages are again being received from the Middle West. The two new blast furnaces under construction in this district will not be completed in time to make iron this year. Plans are being drawn for another stack.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$22.00 to $23.00
No. 1 foundry, 2.25 to 2.75 sil.	22.50 to 23.50
Basic	22.00
Charcoal, warm blast	30.00 to 32.00

Rolled Steel.—All mills and fabricating plants in this district are running practically at capacity. Building operations are calling for considerable tonnage, and there is a diversified demand from small industries. A large hotel is now under construction in Birmingham, and work starts on another in the next four weeks. In addition, a theater is under way, and a second will be started in two weeks. Plates have declined, now ranging from 2c. to 2.10c., base Birmingham. Steel bars continue to be quoted at 2.15c. to 2.25c., and structural shapes at 2.05c. to 2.15c.

Cast Iron Pipe.—Specifications are in sight for a considerable tonnage of pressure pipe for spring delivery. Moreover, some fresh contracts are being closed. Production is being speeded up where possible, and shipments are equal to make. While the usual quotation is $42, base Birmingham, for 6-in. and larger pipe, concessions are reported. Railroad service is satisfactory.

Coke.—Demand for coke continues strong, both in the South and elsewhere. Prices are firm at $5.75 to $6 per ton, Birmingham, with small lots for immediate delivery bringing as high as $6.50. Large tonnages are still being sold for shipment into Chicago and Detroit territories. Other sections are also taking coke from this district. Production is being maintained.

Old Material.—The market remains weak, but shipments are in good volume, considerable tonnage still being due consumers. Few requests to hold up deliveries are being received. Melters are slow to buy because they expect concessions in pig iron to be reflected in lower prices on scrap. Dealers in old material are still taking in mixed scrap and sorting it.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	14.00 to 14.50
Railroad wrought	13.00 to 13.50
Steel axles	19.00 to 20.00
Iron axles	18.00 to 19.00
Steel rails	14.00 to 14.50
No. 1 cast	17.00 to 17.50
Tramcar wheels	17.00 to 17.50
Car wheels	16.00 to 16.50
Stove plate	14.00 to 14.50
Machine shop turnings	8.00 to 8.50
Cast iron borings	8.00 to 8.50
Rails for rolling	17.50 to 18.00

San Francisco

Awards of Pipe and Concrete Bars Feature Quiet Market

SAN FRANCISCO, Feb. 4 (*By Air Mail*).—Demand for iron and steel products during the past week was not of heavy proportions. The great majority of structural awards comprised lots of less than 100 tons. General business conditions are good along the entire Pacific Coast, but the heavy amount of new work scheduled is not being released for figures very rapidly. The price situation is becoming firmer and rumors of price shading have practically disappeared.

Pig Iron.—Little of importance has occurred in the pig iron market during the past week. Sales and inquiries were confined to small lots for prompt shipment. Stocks in foundry yards, in most instances, are sufficient to take care of present requirements. Prices remain unchanged and are as follows:

*Utah basic	$27.00 to $28.00
*Utah foundry, sil. 2.75 to 3.25	27.00 to 28.00
**English foundry, sil. 2.75 to 3.25	25.00 to 26.00
**Belgian foundry, sil. 2.75 to 3.25	24.00
**Dutch foundry, sil. 2.75 to 3.25	24.00
**Indian foundry, sil. 2.75 to 3.25	24.00 to 25.00
**German foundry, sil. 2.75 to 3.25	24.00
**Chinese foundry, sil. 3 to 3.50	25.50

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Bars.—Demand for mild steel bars is not heavy and few sales were reported. Prices are firm at 2.35c., c.i.f., on Eastern material, a price which the local producers are meeting. Awards of concrete bars totaled approximately 1000 tons, and included 300 tons for a hotel in San Diego placed with an unnamed interest and 220 tons for the Vance Hotel and 100 tons for the Frye Garage, both in Seattle, secured by the Pacific Coast Steel Co. Numerous small projects were placed in lots of from 20 to 60 tons. Out-of-stock prices on concrete bars both in the Los Angeles and San Francisco districts are still unsettled and 2.40c. was again reported this week.

Plates.—While pending plate business calls for over 6000 tons, only one award has been reported. This calls for 250 tons of plates and shapes for rebuilding the steamer "Chippewa" at the Lake Washington Shipyards, Seattle. Bids will be opened this week in Portland for approximately 2000 tons for a 42-in. pipe line. Prices now appear to be firm at 2.30c., c.i.f.

Shapes.—Structural shape awards for the week aggregated 300 tons, including 200 tons for a bulkhead for the California Bridge & Tunnel Co., Oakland, secured by the United States Steel Products Co. and 116 tons for a theater in San Francisco placed with the Schraders Iron Works. Pending business totals over 13,000 tons, most of which, it is expected, will be closed during the coming month. Prices are firm at 2.35c., c.i.f. While some of the local fabricators are buying foreign material at about $7 a ton under prices for domestic shapes, fabricators in the Los Angeles district have displayed little interest and so far as can be ascertained have not purchased any tonnages.

Cast Iron Pipe.—Awards of cast iron pipe this week totaled 1100 tons. The United States Cast Iron Pipe & Foundry Co. secured 350 tons of 8-in. Class B pipe for Seattle, 125 tons of 6 and 8-in. Class B pipe for Tacoma and 175 tons of 20-in. Class C pipe and 12-in. De Lavaud pipe for San Bernardino, Cal. B. Nicoll & Co. was awarded 500 tons for Aberdeen, Cal. Pending business is not of heavy proportions, less than 1500 tons being up for figures. New inquiries include 457 tons for the Federal Avenue extension in Seattle. Prices continue unchanged at $50, base, delivered.

Standard Pipe.—Mill representatives report demand for tubular goods as being good. Included among the larger awards were 470 tons of 8-in. Matheson joint pipe and 750 tons of 8-in. lap weld pipe for Los Angeles, placed with the Crane Co. and 500 tons of standard pipe for the Coast Counties Gas Co. secured by the Grinnell Co. of the Pacific. Los Angeles will open bids

on Feb. 5 for 100 tons of ½ to 1-in. galvanized pipe and Upland, Cal., will open bids on Feb. 4 for 225 tons of 6 to 12-in. pipe.

Sheets.—Demand for sheets is confined to relatively small lots, since most consumers have covered on their first quarter requirements. Local producers report a satisfactory volume of business on hand. The Pacific Sheet Steel Co. is preparing to increase its production and is installing two additional stands. Prices are firm at 2.60c., base Pittsburgh, on blue annealed sheets, 3.35c. on black sheets, and 4.60c. on galvanized.

Warehouse Business.—January sales, as reported by most distributers, exceeded those for the previous month. All lines are active and stocks are well rounded out. Prices both in Los Angeles and San Francisco remain unchanged with the exception that shafting was advanced $10 a ton in San Francisco, from 3.75c. to 4.25c.

Local warehouse prices, per 100 lb., are as follows: Merchant bars, $3.30 base; merchant bars, ⅝ in. and under, rounds, squares and flats, $3.80 base; soft steel bands, $4.15 base; angles, ⅜ in. and larger x 1½ in. to 2¾ in., incl., $3.30 base; channels and tees, ¾ in. to 2¾ in., incl., $3.90 base; angles, beams and channels, 3 in. and larger, $3.30 base; tees, 3 in. and larger, $3.30 base; universal mill plates, ¼ in. and heavier, stock lengths, $3.30 base; spring steel, ¼ in. and thicker, $6.30 base; wire nails, $3.50 base; cement coated nails, $3 base; No. 10 blue annealed sheets, $3.75; No. 28 galvanized sheets, $6; No. 28 black sheets, $4.75.

St. Louis

Pig Iron and Steel Sluggish as Scrap Shows Further Weakness

ST. LOUIS, Feb. 9.—Melters in this district have been showing very little interest in their pig iron requirements for second quarter. One of the few transactions of consequence made during the last week was 600 tons sold by the Midland Coke & Iron Corporation to a stove foundry. The sale of 950 tons of foundry iron to a St. Louis melter for prompt shipment also is recorded. Stove plants, jobbing foundries and other melters in the district are busy, but most of them purchased sufficient quantities to last throughout this quarter. There are some inquiries for high silicon iron for spot shipment. Prices are unchanged.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices $2.16 freight from Chicago, $4.42 from Birmingham, all rails, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$25.66
Northern malleable, sil. 1.75 to 2.25	25.66
Basic	25.66
Southern fdy., sil. 1.75 to 2.25	$26.42 to 27.92
Granite City iron, sil. 1.75 to 2.25	24.31 to 24.81

Finished Iron and Steel.—The expected revival in buying has failed to materialize, and business is dull. One hears talk of railroad buying, but nothing tangible has resulted. The construction field is quiet both as to structural shapes and reinforcing bars.

For stock out of warehouse we quote: Soft steel bars, 3.15c. per lb.; iron bars, 3.15c.; structural shapes, 3.25c.; tank plates, 3.25c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, cold rolled, one pass, 4.60c.; galvanized sheets, No. 28, 5.70c.; black corrugated sheets, 4.65c.; galvanized, 5.75c.; cold-rolled rounds, shafting and screw stock, 3.75c.; structural rivets, 3.65c.; boiler rivets, 3.85c.; tank rivets, ⅞-in. diameter and smaller, 70 per cent off list; machine bolts, 55 per cent; carriage bolts, 50 and 5 per cent; lag screws, 55½ per cent; hot-pressed nuts, square, $3.25 off list; hexagon, blank or tapped, $3.75 off list.

Coke.—The Midland Coke & Iron Corporation has increased the price of its domestic coke from $7.50 to $10 at the ovens. This company and other by-product ovens in the district have been favored with a large volume of business with no sign of a let-up. There also is a good demand for foundry grades.

Old Material.—Consumers of old material in this district complain that their customers, particularly the railroads, are slow in issuing specifications against orders, and that their heavy bookings mean nothing to them. These consumers are not buying, and neither are the dealers. Hence the market is weaker, and some prices lower. Railroad lists issued during the week include: Missouri-Kansas-Texas, 1200 tons; Chicago & Alton, 2000 tons; Kansas City Southern, 1000 tons; St. Louis-San Francisco, 1800 tons; Pullman Co., St. Louis, 100 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

	Per Gross Ton	
Iron rails	$13.50 to	$14.00
Rails for rolling	16.75 to	17.25
Steel rails less than 3 ft.	17.50 to	18.00
Relaying rails, 60 lb. and under	24.00 to	25.00
Relaying rails, 70 lb. and over	30.00 to	31.00
Cast iron car wheels	17.25 to	17.75
Heavy melting steel	14.25 to	14.75
Heavy shoveling steel	14.25 to	14.75
Frogs, switches and guards cut apart	16.00 to	16.50
Railroad springs	17.50 to	18.00
Heavy axles and tire turnings	12.25 to	12.75
No. 1 locomotive tires	17.00 to	17.50
	Per Net Ton	
Steel angle bars	14.00 to	14.50
Steel car axles	17.25 to	17.75
Iron car axles	23.00 to	23.50
Wrought iron bars and transoms	19.00 to	19.50
No. 1 railroad wrought	12.25 to	12.75
No. 2 railroad wrought	13.00 to	13.50
Cast iron borings	10.50 to	11.00
No. 1 busheling	11.50 to	12.00
No. 1 railroad cast	14.75 to	15.25
No. 1 machinery cast	16.50 to	17.00
Railroad malleable	13.75 to	14.25
Machine shop turnings	7.00 to	7.50
Bundled sheets	8.00 to	8.50

Boston

Pig Iron and Scrap Markets Quiet with Prices Unsettled

BOSTON, Feb. 9.—Pig iron continues to move in limited quantities, and there appears to be less stability to prices on second quarter shipments. Recent sales include 450 tons of No. 2X for second quarter to a Massachusetts paper machinery maker at about $22, eastern Pennsylvania furnace base, or 50c. a ton under the previous low price. Buffalo iron for second quarter has been offered at less than $21, base furnace, if the melter would take a round tonnage, and high silicon Virginia iron is obtainable at prices which indicate a disregard of regular silicon differentials. Moreover, there are between 6000 and 7000 tons of German, Dutch, Indian and Continental iron on dock here, most of it in storage, for which owners are urgently asking for offers. A New York State furnace, which has not yet started, is again soliciting business on a basis of $21.50, furnace, for No. 2X. Freight rates to points where this iron has been offered are not established, but the delivered prices unquestionably would be less than on Buffalo iron. In view of the inactivity of pig iron it is difficult to establish the market actually on a lower basis, the unsettled condition of prices notwithstanding. Most New England buyers are covered into the second quarter and are evidently in no hurry to buy, preferring to wait and see what the Mystic Iron Works will quote.

We quote delivered prices on the basis of the latest sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia, and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$26.15 to $26.65
East. Penn., sil. 2.25 to 2.75	26.65 to 27.15
Buffalo, sil. 1.75 to 2.25	25.91 to 26.91
Buffalo, sil. 2.25 to 2.75	26.41 to 27.41
Virginia, sil. 1.75 to 2.25	29.92
Virginia, sil. 2.25 to 2.75	30.42
Alabama, sil. 1.75 to 2.25	31.60 to 32.60
Alabama, sil. 2.25 to 2.75	32.10 to 33.10

Pig Iron Imports.—During January, 4061 tons of foreign iron was landed at this port, made up of the following: German, 1650 tons; India, 1485 tons; Dutch, 826 tons, and Scotch, 100 tons. December imports aggregated 3765 tons, while those for January, last year, were 8212 tons. In the first week in February they totaled 5383 tons, consisting of 1930 tons of German and 3453 tons of iron shipped from Rotterdam.

Warehouse Business.—The movement of iron and steel out of warehouse has been slowed up by recent heavy snows, but unfilled orders are accumulating and shipments will be better when the streets are more passable. Prices on bars, plates and sheets are steady, but those on structural steel are unsettled.

Warehouse prices on finished material follow:

Steel.—Soft bars, $3.265 per 100 lb.; flats, $4.15; plain concrete bars, $3.265; deformed concrete bars, $3.265 to $3.54; angles under 3-in., $3.265; tees and zees, $3.415; structurals, angles and beams, $3.365; plates, ¼-in. and heavier, $3.365; ⅜-in., $3.565; tire steel, $4.50 to $4.75; open-hearth spring steel, $5 to $10; crucible spring steel, $12; bands, $4.015 to $5; hoop steel, $5.50 to $6; cold rolled, rounds and hexagons, $3.95; squares and flats, $4.45; toe calk steel, $6.

Iron.—Refined bars, $3.265; per 100 lb.; best refined, $4.60; Wayne, $5.50; Norway, rounds, $6.60; squares and flats, $7.10.

Coke.—Last week's blizzard tied up the movement of coke for two days or so, but both the New England Coal & Coke Co. and the Providence Gas Co. are now shipping on a normal schedule. These companies report the demand for domestic coke as enormous, with allotments to buyers pruned down to a minimum. Demand for by-product foundry coke holds on an even keel. New England foundry coke is still $13 a ton, delivered, within a $3.10 freight rate zone, and is so much cheaper than Connellsville district fuel, delivered, that consumers show no interest in the latter.

Old Material.—No anticipated boom in business has materialized, and while the trade waits, prices continue to fall. Quotations named by dealers are nearer together than they have been in two weeks or more. Those on heavy melting steel, however, continue to take a rather wide spread. Most dealers quote $11.50 to $12, on cars shipping point, but the best a few firms can do is $11. Machine shop turnings and mixed borings and turnings apparently are pegged at $9 to $9.50 on cars. More than 50 per cent of the limited current business is in these two materials and heavy melting steel. Quotations on other materials are too low to be attractive to holders. The General Electric Co., West Lynn, Mass., yesterday closed bids on 31 cars of miscellaneous material.

The following prices are for gross-ton lots delivered consuming points:

Textile cast	$19.50 to $20.00
No. 1 machinery cast	19.00 to 19.50
No. 2 machinery cast	15.00 to 16.00
Stove plate	14.00 to 14.50
Railroad malleable	19.50 to 20.00

The following prices are offered per gross-ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$11.50 to $12.00
No. 1 railroad wrought	13.00 to 13.50
No. 1 yard wrought	12.00 to 12.50
Wrought pipe (1 in. in diameter, over 2 ft. long)	11.00 to 11.50
Machine shop turnings	9.00 to 9.50
Cast iron borings, chemical	11.00 to 11.50
Cast iron borings, rolling mill	9.00 to 9.50
Blast furnace borings and turnings	9.00 to 9.50
Forged scrap	9.00 to 9.50
Bundled skeleton, long	9.00 to 9.50
Forged flashings	9.00 to 9.50
Bundled cotton ties, long	9.00 to 9.50
Bundled cotton ties, short	9.50 to 10.00
Shafting	17.50 to 18.00
Street car axles	17.00 to 17.50
Rails for rerolling	13.00 to 13.50
Scrap rails	11.50 to 12.00

Cincinnati

Large Pig Iron Purchase at Concession—Sheets Lower—Coke Stronger

CINCINNATI, Feb. 9.—With pig iron buyers following a waiting policy, sales in the past week have been confined to small tonnages. Southern Ohio furnaces are adhering to $21, base Ironton, but resale iron from that district can be obtained at 25c. to 50c. under that figure. The sale of iron by brokers at less than the established market price may not prove to be a serious factor, because they have only a limited quantity, and Ironton furnaces are showing no disposition to meet the temporary competition. In fact, it is reported that one of the Ironton producers today booked 800 tons for a Dayton, Ohio, melter at the regular schedule of $21. Two lots of Tennessee iron, totaling 200 tons each, have been sold in this territory. While the price remains at $22, base Birmingham, indications point to a shading of that quotation in the near future. Three Alabama producers have no iron to offer in this market. Another furnace in that State has a little high silicon iron for which it is asking $23, base Birmingham, a price which is too high to secure business here. Silvery iron sales have been unimportant, with the exception of 200 tons for the Packard Motor Car Co., Detroit. The Worthington Pump & Machinery Corporation has purchased 1175 tons of Northern foundry and 150 tons of Bessemer for its local plant, the former tonnage having been placed at less than $21, base Ironton. A Michigan melter is asking for 500 tons of malleable iron for February and March delivery, and a northern Ohio consumer is inquiring for a similar tonnage of low phosphorus iron for shipment during the next three months. A local dealer has sold 100 tons of 12 to 14 per cent Bessemer ferrosilicon to a Southern consumer and 135 tons of spiegeleisen to a company in this territory.

Based on freight rates of $3.69 from Birmingham and $2.27 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 (base)	$25.69
Alabama fdy., sil. 2.25 to 2.75	26.19
Tennessee fdy., sil. 1.75 to 2.25	25.69
Southern Ohio silvery, 8 per cent	32.77
So. Ohio fdy., sil. 1.75 to 2.25	$22.77 to 23.27
Southern Ohio, malleable (nominal)	23.27

Finished Material.—While consumer demand has not been active, specifications and orders in the past week were larger in the aggregate than in any week since early in January. Buyers have little material in stock, but are satisfied to take small tonnages at short intervals and depend upon prompt delivery by mills for their supply. The weakening of the price structure has encouraged consumers to hold out for concessions before closing for their requirements, thereby creating more severe competition between mills. The bar tonnage for the week has been fairly good and prices are firm at 2c., base Pittsburgh. Structural shapes range from 1.90c. to 2c., base Pittsburgh, with the former quotation prevailing on attractive lots and in some instances on single carloads. Further signs of softness in plate prices have appeared and it is reported that one mill quoted 1.80c., base Pittsburgh, on a railroad inquiry during the past week. On most orders, however, 1.85c. is the ruling price. Weakness in sheets has developed, and a nearby mill is now selling automobile body sheets at 4.40c., base Pittsburgh. Orders for galvanized have not been so numerous as mills had anticipated, but prices remain at 4.60c., base Pittsburgh. Pickled black sheets can now be obtained for 3.25c., base Pittsburgh, and blue annealed fro 2.40c., base Pittsburgh, a reduction of $2 a ton from last week's quotations. A sheet mill in this territory operated only nine of its 20 mills in the past week, but another producer averaged 85 per cent of capacity. Sales of wire goods continue to be slow. With the approach of the spring season the demand for fencing is beginning to open up, but the inclement weather has retarded business. Common wire nails are quoted at $2.65 per keg, Pittsburgh or Ironton, and plain wire at $2.50 per 100 lb., Pittsburgh or Ironton. Fabricators have a fair amount of work ahead of them, although new projects are confined principally to those calling for 25 to 100 tons.

Reinforcing Bars.—With no attractive awards pending and with mills figuring only on a few small jobs, the market is dull. There is no indication of a pickup in activities in the near future. Prices remain unchanged, new billet bars bringing 2c., Cleveland, and rail steel bars 1.90c., mill.

Coke.—While both foundry and domestic coke are in heavy demand, the latter is commanding more attention. Wise County and New River furnace grades for domestic purposes are selling at $6.50 to $7. ovens, an increase of $1 over last week's quotations. Furnace coke for spot shipment is exceedingly difficult to secure, because most operators have sold all that they will have available in the next week or 10 days. One dealer reports that orders for the coming week call for shipment of 40 cars of domestic coke daily, but that it is impossible to supply more than 15 cars a day. A producer in the New

River district has fired additional ovens to meet the requirements of consumers. A local broker expects to close an order for 2000 tons of New River furnace coke for delivery in the East. No change in foundry coke quotations has been made, but coke from the Connellsville district has practically been eliminated as a factor here because of prohibitive prices. By-product coke plants in the Portsmouth-Ashland district are running at capacity.

Based on freight rates of $2.14 from Ashland, Ky., $3.53 from Connellsville, and $2.59 from Wise County ovens and New River ovens, we quote f.o.b. Cincinnati: Connellsville foundry, $12.53; Wise County foundry, $9.09; New River foundry, $9.59 to $10.59; by-product foundry, $10.64.

Warehouse Business.—Sales in the past week have been disappointing. The unfavorable weather and the fact that most mills are in a position to make comparatively prompt deliveries have adversely affected the volume of business done by local jobbers. Prices are unchanged.

Cincinnati jobbers quote: Iron and steel bars, 3.30c. per lb.; reinforcing bars, 3.30c.; hoops, 4c. to 4.25c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; cold-rolled rounds and hexagons, 3.85c.; squares, 4.35c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, 4.10c to 4.30c.; No. 28 galvanized sheets, 5.25c. to 5.40c.; No. 9 annealed wire, $3 per 100 lb.; common wire nails, $2.95 per keg base; cement coated nails, $2.25 per keg; chain, $7.55 per 100 lb. base; large round head rivets, $3.75 base; small rivets, 65 per cent off list. Boiler tubes, prices net per 100 ft.; lap-welded steel tubes, 2-in., $18; 4-in., $38; seamless, 2-in., $19; 4-in., $39.

Old Material.—Consumer interest is lagging, and dealers fear that there will be little buying of consequence in the next 30 to 60 days. Although heavy melting steel remains at $13 to $13.50, it is weak. Loose sheet clippings have dropped 50c. The Southern Railway has a list totaling 6600 tons, which will close Feb. 11, while the Norfolk & Western list, closing Feb. 12, aggregates 5800 tons, including 1000 tons of miscellaneous scrap rails and 500 tons of iron car wheels.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

	Per Gross Ton	
Heavy melting steel	$13.00	to $13.50
Scrap rails for melting	13.50	to 14.00
Short rails	18.00	to 18.50
Relaying rails	27.00	to 27.50
Rails for rolling	14.50	to 15.00
Old car wheels	13.00	to 13.50
No. 1 locomotive tires	16.50	to 17.00
Railroad malleable	15.50	to 16.00
Agricultural malleable	14.50	to 15.00
Loose sheet clippings	8.50	to 9.50
Champion bundled sheets	10.50	to 11.00
Per Net Ton		
Cast iron borings	8.50	to 9.00
Machine shop turnings	7.50	to 8.00
No. 1 machinery cast	19.50	to 20.00
No. 1 railroad cast	15.00	to 15.50
Iron axles	22.50	to 23.00
No. 1 railroad wrought	10.00	to 10.50
Pipes and flues	8.50	to 9.00
No. 1 busheling	9.50	to 10.00
Mixed busheling	8.50	to 9.00
Burnt cast	8.50	to 9.00
Stove plate	10.00	to 10.50
Brake shoes	10.00	to 10.50

Buffalo

Scrap Continues to Decline—Good Demand for Sheets—Wire Mills Active

BUFFALO, Feb. 9.—Though the week has been characterized by extremely light buying and this follows a similarly dull month, the price of $21, furnace, for No. 2 plain still appears to be firm. Inquiries do not total more than 5000 tons, with the largest 500 tons. Two sellers continue to ask $22, base furnace, for prompt shipment iron, but this price has no takers, since purchases can be made from other sources at $21. The general price on second quarter iron is $21, base furnace.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

No. 2 plain, sil. 1.75 to 2.25		$21.00
No. 2X foundry, sil. 2.25 to 2.75		21.50
No. 1 foundry, sil. 2.75 to 3.25		22.50
Malleable, sil. up to 2.25		21.00
Basic	20.50 to	21.00
Lake Superior charcoal		29.28

Finished Iron and Steel.—Fabricators of structural shapes note an improved tone in the market and an increase in small tonnages. The demand for body sheets and metal furniture sheets reflects a feeling of confidence in the automobile and furniture industries. Sheet mills look for a heavy run of business. Demand for bars in fair, with 2.265c., Buffalo, generally quoted. This price is also named on shapes, and 2.065c. is quoted on plates. Wire business is good, and mill operations are satisfactory. Generally mill output in this district ranges from 85 to 90 per cent. Makers of reinforcing bars are in a better position than at the same time last year.

Warehouse prices are being quoted as follows: Steel bars, 3.30c. per lb.; steel shapes, 3.40c.; steel plates, 3.40c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, 4.60c.; No. 28 galvanized, 5.75c.; Cold-rolled shapes, 4.45c.; cold-rolled rounds, 3.95c.; wire nails, 3.90c.; black wire, 3.90c.

Old Material.—The market is still declining, with prospects that it will go lower. With an abundance of scrap coming out, it is probable that mills will have no difficulty in filling their requirements at lower prices. Large quantities of scrap are now being offered at present quotations. Only one mill is actively buying, and the latest price it offered on heavy melting steel was $16. Because of the scarcity and high price of coke there has been a flurry in the borings and turnings market on material for blast furnace consumption.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel	$16.00	to $16.75
Low phosphorus	19.50	to 20.00
No. 1 railroad wrought	14.00	to 14.50
Car wheels	17.00	to 17.50
Machine shop turnings	13.00	to 13.50
Mixed borings and turnings	14.00	to 14.50
Cast iron borings	14.00	to 14.50
No. 1 busheling	15.50	to 16.00
Stove plate		15.00
Grate bars	13.50	to 14.00
Hand-bundled sheets	11.00	to 11.50
Hydraulic compressed	15.50	to 16.00
No. 1 machinery cast	17.00	to 17.50
Railroad malleable	19.00	to 19.50
No. 1 cast scrap	17.00	to 17.50
Iron axles	26.00	to 27.00
Steel axles	17.50	to 18.00

Youngstown

Bank Blast Furnace to Sell Coke—Sheet Prices Irregular

YOUNGSTOWN, Feb. 9.—The Struthers Furnace Co., Struthers, Ohio, has banked its merchant stack, owing to irregular coke shipments and the poor quality of the coke. The company has entered the merchant coke market in New York, where it is endeavoring to sell its supplies running up to 5000 tons.

This company has also acquired title to 26,000 tons of iron ore, of various grades, held by the First National Bank, Pittsburgh, paying $3 per ton. This ore is now in the Struthers furnace yards.

Banking of a blast furnace in the Iroquois group of the Youngstown Sheet & Tube Co., at South Chicago, is directly attributable to the tight coke situation, states an officer. He advises that the company is booked solidly in pig iron through the first quarter in the Chicago district, and is using surplus iron from the Indiana Harbor furnaces for merchant needs.

The current moderate decline in buying of the lighter steel products, reflected this week in a further reduction in active capacity in the lighter rolled steel materials, is of temporary duration, makers contend. "Many sheet consumers bought heavily in the last quarter of 1925, when prices were lower, and are now working up this tonnage before specifying on their contracts for this quarter," states an executive of the Youngstown Sheet & Tube Co. "This condition, however, will not last long because consumption is at a very high rate." The Sheet & Tube company's January shipments exceeded those for December.

Sheets.—Irregularity in steel sheets is noticeable both in prices and in production schedules. With the exception of blue annealed grades, concessions of $2 per ton from the established current levels are becom-

ing more frequent, affecting particularly the common grades, automobile stock and galvanized sheets. This week, in the Mahoning Valley, 91 of 127 hot mills were scheduled to start, and not all were to work throughout the week. Some operators arranged schedules with a loss of one or two turns at the beginning of the week. Last December sheet mill schedules in the Valley reached a high mark with 121 mills under power. Resumption this week, after one week's idleness, of the seven-mill plant of the Waddell Steel Co. at Niles, is offset by the suspension of the eight mills of the Falcon Steel Co. Sheet production in the Valley is not above 75 per cent.

Ingot Output.—Steel ingot output also reflects less active demand for rolled steel, with 38 of 53 independent open-hearth furnaces active, against a high last December of 47 furnaces. The Steel Corporation subsidiaries in the district are producing steel ingots at an 85 per cent rate. The Youngstown Sheet & Tube Co. has declined to an 80 per cent average, from 90 per cent, the rate maintained until about two weeks ago. The Republic Iron & Steel Co. has dipped below the 80 per cent rate, with curtailment in active sheet capacity. At its Girard works, the A. M. Byers Co., Pittsburgh, is operating its plant full with the exception of its blast furnace. The Trumbull Steel Co. continues to run at close to capacity.

Steel Pipe.—Makers of lap weld tubes report some quickening in buying, which will likely be reflected at an early period in better production. Of 18 tube mills in the district, 12 are under power. Skelp mill output averages 80 per cent.

Cleveland

Sheet Prices Recede—Concession on Bars —Pig Iron Gives Ground

CLEVELAND, Feb. 9.—Specifications for finished steel are holding up in good volume, but there is very little new business, although some of the mills report a gain in inquiries for steel bars. Some of these inquiries specify early deliveries, indicating that buyers are holding off until they need material. With good deliveries consumers are carrying low stocks, and general reports indicate that manufacturing operations in various metal-working industries are holding up well. Word received from Detroit indicates an increase in production schedules by some of the automobile plants this month. It is stated that some of the automobile companies are starting to build cars for stock to take care of the increases in sales expected in the early spring. The increased production schedules are reflected in a heavier demand for steel, although this industry is not buying material for extended deliveries. A leading manufacturer of low-priced cars has secured a concession on steel bars, placing an order at a reported price of 1.90c., base Pittsburgh. For the general run of bar orders the market is firm at 2c. On plates 1.85c., base Pittsburgh, appears to be the more common price, although 1.80c. is being done in some cases and other orders are being taken at 1.90c. On structural material 1.90c. is the more common price. While a good amount of building work is in prospect, inquiry is slow in coming out.

Iron Ore.—The Ford Motor Co. has sent out an inquiry for 275,000 tons of basic, high phosphorus and manganese ore for 1926 delivery. The Ford inquiry is the first in open market for the season, as it was in the previous two or three years. The Ford company did not set a time for the submission of prices, and it may be 30 days before prices for the season are named. Ore shipments from Lake Erie docks during January were 460,016 tons, as compared with 622,581 tons during January last year. The balance on dock Feb. 1 was 6,622,533 tons, as compared with 6,723,719 tons on the same date a year ago.

Pig Iron.—Some of the Lake furnaces are not taking quite as firm a stand on prices as they have been. One producer that has been on a $23 base for foundry and malleable iron, is now quoting $22.50, furnace, for the second quarter. A Cleveland interest which has been asking $21, furnace, for iron for out of town shipment, has reduced its price to $20.50. One of these producers evidently was influenced by the fact that it has been losing considerable business to southern Ohio and Columbus furnaces. Several lots in Dayton and Springfield went to interior furnaces because of delivered prices which were approximately $1 a ton lower than those from Lake furnaces. The price of $21, Cleveland, for outside shipment was out of line with the Valley price of $20.50, furnace. The latter quotation appears to be firmly held in the Valley district. For Cleveland delivery the price is unchanged at $22 at furnace. The price range in western Ohio, eastern Indiana and Michigan for the second quarter is $22.50 to $23, furnace. Cleveland interests sold 20,000 tons the past week, a slight gain over the previous week. There was an active market in Erie, where three consumers bought 3000 tons. While foundries continued to take iron in very good volume, they are still showing a great deal of hesitancy about placing second quarter contracts, and not a great deal of iron has been sold for that delivery.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6.01 from Birmingham:

Basic, Valley furnace	$20.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25	$22.26 to 22.50
Southern fdy., sil. 1.75 to 2.25	28.01
Malleable	22.26 to 22.50
Ohio silvery, 8 per cent	33.52
Standard low phos., Valley furnace	27.50 to 28.00

Semi-Finished Steel.—Consumers are covered for their early requirements, and there is no new demand. The McKinney Steel Co., which recently increased its open-hearth operations from four to seven furnaces, found that the increased production capacity was in excess of the demand and has gone back to a four-furnace operation.

Reinforcing Bars.—These are in light demand. Prices are unchanged at 1.80c. to 1.90c. for rail steel bars.

Sheets.—Blue annealed sheets have followed other grades in developing weakness and these are being quoted quite freely at 2.40c., base Pittsburgh. Prices higher than 3.25c. on black sheets and above 4.40c. on automobile body sheets seem to have virtually disappeared. While galvanized sheets are firmer than other grades, these can be bought for 4.50c. Although mill quotations have been $2 a ton higher than the above prices since November, very little business was booked at the advance, since most consumers have not used up the sheets they bought before the rise in prices. Outside of some recent buying by the automotive industry, there is little new demand. Most of the mills have gained on deliveries and some are in need of orders.

Bolts and Nuts.—There is some irregularity in bolt and nut prices. While makers have not changed the discounts that have prevailed for a year, their methods of applying the discounts to quantities differ. Some are still holding to 50, 10 and 10 per cent off on machine bolts, but are no longer naming a 5 per cent less discount for less-than-car lots. However, others are using the same base for less-than-car lots and are allowing 5 per cent additional for car lots. Some makers have increased their discount on hot-pressed nuts 25c. per 100 lb. on car lots.

Strip Steel.—Hot-rolled strip steel is in fair demand, although some of the mills do not have much tonnage on their books. Cold-rolled strip is not so active as hot-rolled. Regular prices on both hot and cold-rolled strip are firm.

Fluorspar.—The market is rather slow, although a few small-lot sales of gravel fluorspar are reported at $17.50, mines. Sellers are not trying to get a higher price.

Warehouse Business.—Warehouse orders are fairly heavy, but there is some irregularity in prices on steel bars, plates and structural material.

Jobbers quote steel bars, 3.10c. per lb.; plates and structural shapes, 3.20c.; No. 28 black sheets, 4.10c.; No. 28 galvanized sheets, 5.25c.; No. 10 blue annealed sheets, 3.25c.; cold-rolled rounds and hexagons, 3.90c.; flats and squares, 4.40c.; hoops and bands, 3.85c.; No. 9 annealed wire, $3 per 100 lb.; No. 9 galvanized wire, $3.45 per 100 lb.; common wire nails, $3 base per keg.

Coke.—The demand for by-product coke for domestic use continues heavy and prices are slightly higher. Ruling prices during the week were $12 to $12.50, Ohio ovens, although sales were made as high as $13. Connellsville foundry coke is firm at $12, ovens. Virginia and West Virginia foundry cokes are higher.

Based on freight rates of $2.77 from Connellsville, $1.26 from Painesville, $3.48 from Wise County and $3.65 from West Virginia, we quote foundry coke f.o.b. Cleveland: Connellsville, **$14.77**; **Ohio by-product**, $9.76; Ashland by-product, $10.27; New River and Pocahontas, $11.50 to $12.48; Wise County, $10.98 to $11.48.

Old Material.—The market continues stagnant, with no signs of improvement. Not a great deal of material is coming out, as neither producers nor consumers seem inclined to force sales. Consumers are taking limited quantities of material on contracts, and as a rule do not seem interested in buying at lower prices. However, one Cleveland consumer is offering $16 for heavy melting steel and has been able to buy a small quantity at that price. Generally prices are untested, but the market has a weak tone.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel	$15.75 to $16.25
Rails for rolling	16.75 to 17.00
Rails under 3 ft	19.50 to 20.00
Low phosphorus melting	18.25 to 18.50
Cast iron borings	13.25 to 13.50
Machine shop turnings	13.25 to 13.50
Mixed borings and short turnings	13.25 to 13.50
Compressed sheet steel	15.50 to 16.00
Railroad wrought	14.50 to 15.00
Railroad malleable	20.00 to 20.50
Light bundled sheet stampings	12.50 to 12.75
Steel axle turnings	15.25 to 15.50
No. 1 cast	18.00 to 18.50
No. 1 busheling	13.50 to 13.75
Drop forge flashings	13.25 to 13.50
Railroad grate bars	13.75 to 14.00
Stove plate	13.75 to 14.00
Pipes and flues	11.50 to 12.00

Scrap Market Not Reacting to Increased Automobile Output

DETROIT, Feb. 9.—Little activity has been shown in the scrap market during the past week and no sales of any size have been made. Pig iron shipments have increased since the first of the month and large producers of automobiles are producing at a higher rate than in January without storing cars.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	$14.25 to $14.75
Borings and short turnings	10.75 to 11.25
Long turnings	10.25 to 10.75
No. 1 machinery cast	17.00 to 18.00
Automobile cast	23.00 to 24.00
Hydraulic compressed	13.50 to 14.00
Stove plate	13.50 to 14.50
No. 1 busheling	13.25 to 13.75
Sheet clippings	8.75 to 9.25
Flashings	11.25 to 11.75

The upper Silesian mining industry recently placed orders with the Vitkovice Iron Works of Czechoslovakia for mining machinery, stated to approximate 20,000,000 gold marks ($4,760,000), according to a report by Consul General C. S. Winans, Prague. This is especially noteworthy when it is considered that these mines are located in the German coal district and that the German machinery industry made strong efforts to secure these contracts.

Exports of farm machinery in 1925 show a reversion to the pre-war status, when Europe was the largest purchaser. The shipments to Europe comprise 32 per cent of the total shipments of $78,000,000. In 1924 South America took the most, valued at $22,000,000, which was 29 per cent of the total of such exports.

New York

Cross Currents in Pig Iron—Steel Buying Better Than in January

NEW YORK, Feb. 9.—Although pig iron has developed further weakness, there are cross currents in the market which accentuate the uncertainty of the price situation. At the moment eastern Pennsylvania foundry iron is available at as low as $22, base furnace, a recession of 50c. a ton from a week ago, and the concession of silicon differentials on Buffalo iron has been reported. There is no denying that domestic iron has given ground before the invasion of foreign iron, offerings of which have been particularly heavy of late. This foreign material, however, is in the hands of brokers who bought it some time ago. In view of recent advances by furnaces abroad, it is probable that when the supplies of American sellers are disposed of, present prices on foreign iron will be a thing of the past. Another factor which cannot be overlooked is the possibility that several domestic furnaces serving this market will go out. One stack plans to blow out within a week and to sell its coke for household consumption. Another furnace contemplates similar action soon. In the Valley the Struthers Furnace Co. has already banked its stack for this purpose. Apparently it is more profitable to sell the coke on the open market than to use it for melting ore into pig iron. On the other hand, the new furnace at Troy, N. Y., plans to go into blast by the middle of March. Sales in this district during the past week aggregated about 5000 tons, much of it consisting of small lots for delivery during the current quarter. However, the E. W. Bliss Co., Brooklyn, bought 1000 tons of foreign iron, and the A. P. Smith Mfg. Co., Newark, N. J., has closed for 400 tons of domestic for April to July delivery. The Worthington Pump & Machinery Corporation has bought 1175 tons of foundry and 150 tons of Bessemer for its Elmwood Place, Ohio, works and 1000 tons of foundry and malleable for Buffalo, all for delivery through September, but it has not yet closed on inquiries for Harrison, N. J., and Holyoke, Mass. The Standard Gas Equipment Corporation, New York, is in the market for 1500 tons for March to June shipment, and the Gilbert & Barker Mfg. Co., Springfield, Mass., is inquiring for an equal tonnage. Foreign pig iron is available at $21, duty paid New York, with lower prices reported at Philadelphia.

We quote per gross ton delivered in the New York district as follows, having added to furnace prices $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.54 from Virginia:

East. Pa. No. 2 fdy., sil. 1.75 to 2.25	$24.52 to $25.02
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	25.02 to 25.52
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	25.52 to 26.02
Buffalo fdy., sil. 1.75 to 2.25	25.91
No. 2 Virginia fdy., sil. 1.75 to 2.25	29.54

Ferroalloys.—Sales of several hundred tons of ferromanganese are noted in lots of 100 to 200 tons and in carload and small lots. One consumer has attempted to buy a few hundred tons of British alloy at a concession from $115, seaboard. The spiegeleisen market is quiet, sales and inquiries being confined to carload and small lots for fairly prompt delivery. There are no new developments in the 50 per cent ferrosilicon or standard ferrochromium markets, specifications on contracts for which are liberal.

Finished Iron and Steel.—New business so far in February is generally better than the average developed in January, and relatively both pipe and wire products have shown most improvement. It is clear that the buying of November and December was much heavier than generally apprehended at the time, and it is the specifications against these bookings that has sustained the high rate of operations of the mills. This description of the conditions applies even to fabricated steel work, where buying for specific projects developed heavy specifications throughout January. While new work in steel buildings fell off in January, there is now

renewed activity and a large tonnage under consideration. Rather generally jobbers have had a large volume of business, but as yet have not come into the market in any large way for restocking. The price structure is notably strong. Even in sheets this is so, with the large producers evidently a unit in resisting price depressing. Some complaint is heard regarding a practice now and then resorted to of selling bars, shapes and plates on a combined price, presumably at times to clinch steel plates orders. The complaint arises from, say, a bar mill, which adhering to the existing price finds the straight bar price out of the running. Elsewhere in the foreign market mention is made of notable purchases by Japan. Meanwhile, there are continued indications of activity here on the part of European producers. One interesting case covers some 200 tons of merchant pipe made by August Thyssen & Co. for delivery to a jobber in Havana, booked through a New York importer. The pipe was sold at 10 points below the American product, or $20 a ton, against which is a preferential tariff in favor of the United States of roughly $3.50 a ton.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. to 2.44c. per lb.; plates, 2.09c. to 2.14c.; structural shapes, 2.24c. to 2.34c.; bar iron, 2.24c.

Warehouse Business.—Demand continues small, although purchases are fairly numerous. Buying of structural steel from stock is on a small scale, the mills being able to supply much of the current demand with prompt shipments. Neither black nor galvanized sheets show any firmness, 4.35c. and 5.35c. per lb. respectively being easily obtainable except on the smallest lots. Copper prices have been advanced ½c. per lb., reflecting the recent increase by producers. Zinc sheets continue unchanged. Prices on page 472. We quote boiler tubes per 100 ft. as follows:

Lap welded steel tubes, 2-in., $17.33; seamless steel, 2-in., $20.24; charcoal iron, 2-in., $25; 4-in., $67.

Cast Iron Pipe.—Demand for bell and spigot water and gas pipe compares favorably with the active market of last year. In addition to continued purchasing by privately owned gas companies, Newton, Mass., has awarded 1100 tons of 6-in. and 20-in. water pipe to the Warren Foundry & Pipe Co., Malden, Mass., about 300 tons of pipe to the Donaldson Iron Co. and Northampton, Mass., about 300 tons to the United States Cast Iron Pipe & Foundry Co. A Hudson River municipality is about to close on from 2000 to 3000 tons of large size water pipe. New York is understood to be preparing an inquiry for 6000 to 7000 tons of pipe. Several export inquiries are reported current, one for 1200 to 1500 tons for shipment to Peru and another for about 1000 tons for export to Cuba. Soil pipe continues quiet and discounts unchanged.

We quote pressure pipe per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, $50.60 to $52.60; 4-in. and 5-in., $55.60 to $57.60; 3-in., $65.60 to $67.60; with $5 additional for Class A and gas pipe. Discounts both of Northern and of Southern makers of soil pipe, f.o.b. New York, are as follows: 6-in., 42½ to 43¼ per cent off list; heavy, 52½ to 53¼ per cent off list.

Coke.—Prices registered further advances in the past week bringing furnace coke to a range of $13.50 to $14 per ton and foundry to $13.50 with the possibility of $13 being done. Domestic sizes range from $14.50 to $15 per ton, Connellsville. Although there are reports of occasional offerings of carload lots at lower than these prices, in most instances the coke is offgrade or scrapings from the yard. Although the shortage of cars to move coke is not acute, the railroads are reported to be encountering considerable difficulty in providing sufficient locomotives. By-product continues at $11.52 per ton, delivered Newark or Jersey City, N. J., with no prompt shipment coke available.

Old Material.—The recent storm and cold weather has reacted on shipments of scrap from dealers' yards so that but little material is moving at present. In addition, the low offering prices do not prove much of an incentive to the shipment of large tonnage. No. 1 heavy melting steel is still quoted by brokers at $15.50 to $16 per ton, delivered eastern Pennsylvania consumers and other grades of scrap are also unchanged.

Buying prices per gross ton, New York, follow:

Heavy melting steel (yard)	$11.00 to $11.50
Heavy melting steel (railroad or equivalent)	12.50 to 13.00
Rails for rolling	13.50 to 14.00
Relaying rails, nominal	23.00 to 24.00
Steel car axles	19.50 to 20.00
Iron car axles	23.50 to 24.00
No. 1 railroad wrought	14.00 to 14.50
Forge fire	10.50 to 11.00
No. 1 yard wrought, long	13.00 to 13.50
Cast borings (steel mill)	10.00 to 10.25
Cast borings (chemical)	14.00 to 14.50
Machine shop turnings	10.00 to 10.25
Mixed borings and turnings	10.00 to 11.00
Iron and steel pipe (1 in. diam., not under 2 ft. long)	11.75 to 12.25
Stove plate (steel mill)	10.00 to 10.50
Stove plate (foundry)	11.25 to 11.75
Locomotive grate bars	11.50 to 12.00
Malleable cast (railroad)	16.50 to 17.50
Cast iron car wheels	14.00 to 14.50
No. 1 heavy breakable cast	13.25 to 14.50

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$17.50 to $18.00
No. 1 heavy cast (columns, building material, etc.), cupola size	16.00 to 16.50
No. 2 cast (radiators, cast boilers, etc.)	15.00 to 15.50

Philadelphia

Pig Iron Quiet But Firm in View of Possible Higher Coke—Plates Steady

PHILADELPHIA, Feb. 9.—Although there is some evidence of a slight improvement in demand, tonnages involved in current transactions on both steel and pig iron continue small. The size of some tonnages and the prompt delivery made by mills taking the business almost bring the transactions into the warehouse field, and it is noteworthy that in some instances local jobbers have reduced their quotations on steel bars to as low as 2.90c. per lb. base. While there has been no appreciable increase in the tonnage of new plate business, eastern Pennsylvania makers are today adhering rather generally to a minimum of 1.80c. per lb., showing no inclination to shade this figure except possibly on a sizable order.

Stocks of pig iron on furnace yards are evidently small and sellers well booked for the remainder of the first quarter. On second quarter business, however, the greater part of the tonnage already sold was taken before the possible seriousness of the coke situation for that quarter was foreseen. In consequence of this uncertainty as to coke costs, there is an evident disinclination to buy heavily at the present prices, and the importation of foreign iron is something of a deterrent to much of an advance. Several thousand tons of foreign pig iron is available at extremely desirable prices from stocks of importers in Philadelphia. Imported steel continues to stir the local market occasionally.

Billets.—Demand continues light with prices ranging from $35 to $36, Pittsburgh, with forging quality at $41 per ton, Pittsburgh.

Pig Iron.—A range of $22.50 to $23 per ton, furnace, still represents the market on foundry grade, although the producer quoting the lower price to secure a backlog is evidently better covered with orders and counted on to stiffen to the $23 base. Current inquiry is small, business in the market calling for lots of 100 to 200 tons. In view of the future uncertainty of fuel costs, furnaces are apparently not in a very receptive frame of mind for second quarter business at present prices. It is estimated that 6000 to 7000 tons or more of foreign pig iron is being offered from stocks of importers at Philadelphia, unable to dispose of tonnages before arrival. While Dutch iron is quoted at $22 to $23 per ton and the German product at $21.50 to $22 per ton, c.i.f. Philadelphia, duty paid, the iron available from these stocks is reported to be quoted at considerably

lower prices. No sales of basic are reported and the current price is consequently nominal.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$23.76 to $24.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	24.26 to 24.63
East. Pa. No. 1X	24.76 to 25.13
Virginia No. 2 plain, 1.75 to 2.25 sil.	27.67 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.	28.17 to 29.17
Basic, delivered eastern Pa.	23.00 to 23.50
Gray forge	23.00 to 23.50
Malleable	24.00 to 25.00
Standard low phos. (f.o.b. furnace)	23.00 to 24.00
Copper bearing low phos. (f.o.b. furnace)	24.00

Bars.—There is apparently some shading of the 2c. per lb. Pittsburgh price with current demand moderate. Iron bars are unchanged at 2.22c. per lb., base, delivered Philadelphia. A purchase of foreign reinforcing bars is understood to have been made at 1.85c. per lb., base, c.i.f. Philadelphia, duty paid.

Soft steel bars and small shapes, 2.90c. to 3.20c. per lb.; iron bars (except bands), 2.90c. to 3.20c.; round edge iron, 3.50c.; round edge steel, iron finished, 1½ x ½ in., 3.50c.; round edge steel, planished, 4.30c.; tank steel plates, ¼-in. and heavier, 2.80c. to 3c.; tank steel plates, ⅜-in., 3c.; blue annealed steel sheets, No. 10 gage, 3.50c.; black sheets, No. 28 gage, 4.65c.; galvanized sheets, No. 28 gage, 5.85c.; square, twisted and deformed steel bars, 3c.; structural shapes, 2.75c. to 2.90c.; diamond pattern plates, ¼-in., 5.30c.; ⅜-in., 5.50c.; spring steel, 5c.; rounds and hexagons, cold-rolled steel, 4c.; squares and flats, cold-rolled steel, 4.50c.; steel hoops, 4c. to 4.25c., base; steel bands, No. 12 gage to ⅜-in., inclusive, 3.75c. to 3.90c.; rails, 3.20c.; tool steel, 8.50c.; Norway iron, 6.50c.

Old Material.—Consumers claim to be receiving sufficient tonnage on contracts to meet their current requirements so that buying is extremely light. This is particularly true of No. 1 heavy melting steel which is the least active grade in the scrap market. Prices are generally unchanged except for chemical borings which are quoted this week at $15.50 to $16 per ton and rails for rolling which are off slightly to $17.50 to $18 per ton.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	$16.00 to $16.50
Scrap rails	16.00 to 16.50
Steel rails for rolling	17.50 to 18.00
No. 1 low phos., heavy, 0.04 per cent and under	20.00 to 21.00
Couplers and knuckles	19.00 to 20.00
Rolled steel wheels	19.00 to 20.00
Cast iron car wheels	17.50 to 18.00
No. 1 railroad wrought	18.00 to 18.50
No. 1 yard wrought	16.50 to 17.00
No. 1 forge fire	14.50 to 15.00
Bundled sheets (for steel works)	14.00
Mixed borings and turnings (for blast furnace)	13.50 to 14.00
Machine shop turnings (for steel works)	14.00
Machine shop turnings (for rolling mill)	14.50
Heavy axle turnings (or equivalent)	15.00
Cast borings (for steel works and rolling mill)	14.00 to 14.50
Cast borings (for chemical plant)	15.50 to 16.00
No. 1 cast	18.00 to 18.50
Heavy breakable cast (for steel works)	17.00 to 17.50
Railroad grate bars	14.50
Stove plate (for steel works)	14.50
Wrought iron and soft steel pipes and tubes (new specifications)	16.00 to 16.50
Shafting	22.00 to 23.00
Steel axles	22.00 to 23.00

Shapes.—The market is quotable at 1.95c. to 2c. per lb., base, Pittsburgh. There are a fair number of building projects in the market. A few hundred tons for two Philadelphia public schools are reported to have been placed this week. Structural steel for the Fidelity Mutual Life Insurance building, 1100 tons, went to the Jones & Laughlin Steel Corporation.

Plates.—Makers are developing a firmer attitude and 1.80c. per lb. base is the minimum, although a sizable and desirable tonnage might bring out a slight concession. Local shipyards are quoting on two car floats for the New Haven railroad, involving about 1000 tons of plates.

Sheets.—Buying of both black and galvanized sheets is on a small scale and even with the present small orders the quotations of 4.60c. on galvanized and 3.35c. per lb. on black are not firm.

Ferromanganese.—Purchases range from carloads to 50 or 100 tons but as a whole the market is rather inactive. The price continues unchanged at $115 per ton, seaboard or domestic furnace.

Imports.—Arrivals of pig iron during the week of Feb. 6 totaled 7561 gross tons from six countries as follows: France, 2355 tons; India, 2716 tons; United Kingdom, 1600 tons; Germany, 500 tons; Netherlands, 270 tons; and Belgium, 120 tons. A total of 1250 tons of manganese ore arrived from India and 25 tons of ferromanganese from Great Britain. Imports of steel included 1107 tons of blooms from France and 70 tons of structural material from Belgium.

RAILROAD EQUIPMENT

Car Inquiries Small But Purchases Exceed 5000 —Total Cars for Repair Smallest in Two Years

On Jan. 15, there were fewer freight cars in need of repair than at any time in the past two years, according to the Car Service Division, American Railway Association. The total number was 155,763 or 6.8 per cent of the number on line. This was a decrease of 1642 cars from the Jan. 1 total of 157,405 cars and a drop of 31,547 from the number reported at the same time a year ago. Locomotives in need of repair, Jan. 15, totaled 10,736 or 17 per cent of the number on line, an increase of 967 compared with the 9769 on Jan. 1.

Locomotives shipped during January totaled 113, according to reports received by the Department of Commerce from the principal manufacturing plants. This compares with 93 in December and 90 in January, 1925. Of the January shipments 91 were for domestic railroads. Unfilled orders Jan. 31 totaled 580.

New inquiries for cars reported in the past week totaled 1175, in addition to which there are the reports that the Northern Pacific will enter the market soon for 1000 automobile cars and that the Burlingon is contemplating the purchase of 500 hopper cars. Purchases of cars reached a fair total with 5051 reported, of which the Pacific Fruit Express placed 5043.

The Haines Port Mining & Transportation Co. has placed 8 50-ton steel hopper cars with the American Car & Foundry Co.

The Central Railroad of New Jersey has placed 5 steel baggage and express cars with the American Car & Foundry Co.

The Northern Pacific is expected to enter the market soon for 1000 50-ton automobile cars.

It is reported that the Burlington will soon ask for figures on 500 hopper bottom cars.

The Florida East Coast Railroad, which recently purchased 10 locomotives from the American Locomotive Co., is reported to be considering further buying which will bring its total awards to 42 locomotives.

The Pacific Fruit Express, through the Western offices of the Southern Pacific Lines, placed 5043 refrigerator cars as follows: 1000 each to the American Car & Foundry Co., Standard Steel Car Co., General American Car Co. and the Pacific Car & Foundry Co. The Pullman Car & Mfg. Corporation was awarded 1043 refrigerators.

The St. Louis-San Francisco will construct 950 underframes in its shops at Memphis, Tenn.

The Western Maryland Railroad is inquiring for 1000 box cars.

The Nashville, Chattanooga & St. Louis Railroad is inquiring for 75 flat cars and 100 hopper cars.

The Central Railroad of New Jersey has placed orders for 25 coaches with the Bethlehem Shipbuilding Co., 5 passenger and baggage cars with the Pressed Steel Car Co. and 5 baggage and express cars with the American Car & Foundry Co.

The American Locomotive Co. has received the following orders: One 2-6-2-T type locomotive from the Bwana M'Kubwa Copper Co., one 8-wheel switching locomotive from the Weirton Steel Co., one Consolidated type locomotive from the Birmingham Southeastern, one Mikado type locomotive from the Alton & Southern.

FABRICATED STEEL

Awards About 25,000 Tons and New Projects 14,650 Tons, All Relatively Small

Structural steel awards reported for the past week continued in moderate volume. The total, about 25,000 tons, is close to the weekly average for the five previous weeks of 24,500 tons. The largest contract is 2525 tons for transmission towers for the Niagara, Lockport & Ontario Power Co. Most of the tonnage is for small lots, only a few amounting to 1000 tons or over. The largest project of the 14,650 tons in new business pending is 2700 tons for the Parker House, Boston. The inquiries for the week compare with the weekly average of 19,300 tons for the five previous weeks, the largest of which was 25,000 tons for the third week in January. Awards follow:

The Structural Steel Board of Trade of New York reports the following contracts totaling 1306 tons as having been taken by members: Garage building, 1572-1586 Bedford Avenue, Brooklyn, to Lehigh Structural Steel Co.; hotel at 497 Lexington Avenue, New York, to Bethlehem Fabricators, Inc., and an apartment house, 934 Carrol Street, Brooklyn, to Gaynor & Rosenbloom.

Post office, West Fifty-second Street, New York, 400 tons, to George A. Just Co.

Apartment, West Ninth Street, New York, 600 tons, to Easton Structural Steel Co.

Loft building, Twenty-eighth Street and Seventh Avenue, New York, 1100 tons, to Taylor-Fichter Steel Construction Co.

Apartment, East Seventy-second Street, New York, 900 tons, to Taylor-Fichter Steel Construction Co.

Architects' Building, 101 Park Avenue, addition, 1900 tons, to McClintic-Marshall Co.

Fifteen-story apartment, New York, 500 tons, to Hay Foundry & Iron Works.

McGregor Hotel, Fort Meyers, Fla., 150 tons, to Bethlehem Fabricators, Inc.

Procter & Gamble Co., Port Ivory, Staten Island, 700 tons, to Lehigh Structural Co.

Pennsylvania Railroad bridge, 300 tons, to Fort Pitt Bridge Co.

Delaware, Lackawanna & Western Railroad, bridge at Owego, N. Y., 1400 tons, to American Bridge Co.

Ohio Savings & Loan Co., Columbus, Ohio, building, 800 tons, to Case Crane Co.

Cathedral High School for Boys, Pittsburgh, 300 tons, to Jones & Laughlin Steel Corporation.

Fidelity Title & Trust Co., Philadelphia, banking building, 1100 tons, to Jones & Laughlin Steel Corporation.

Rodgers Sand Co., Pittsburgh, 12 barges, 1800 tons, equally divided between Jones & Laughlin Steel Corporation and American Bridge Co.

Pittsburgh Crucible Steel Co., Midland, Pa., mill building, 1125 tons, to American Bridge Co.

Niagara, Lockport & Ontario Power Co., transmission towers, 2525 tons, to American Bridge Co.

Missouri-Kansas-Texas Lines, bridge program, 1200 tons, to Kansas City Bridge Co.

Two 350-ft. highway spans over Yazoo River, Vicksburg, Miss., 900 tons, to Virginia Bridge & Iron Co.

Fairmont Jockey Club, East St. Louis, Ill., 240 tons, to St. Louis Structural Steel Co.

Wahiawa Bridge, Honolulu, Hawaii, 225 tons, to Virginia Bridge & Iron Co.

Aluminum Goods Mfg. Co., Two Rivers, Wis., 100 tons, to Milwaukee Bridge Co.

Ohio State Savings Bank, Columbus, Ohio, 600 tons, to Fort Pitt Bridge Works, Pittsburgh.

Track elevation, Erie, Pa., 1800 tons, to Mount Vernon Bridge Co., Mount Vernon, Ohio.

Theater, Haight Street, San Francisco, 116 tons, to Scharders Iron Works.

California Bridge & Tunnel Co., Oakland, Cal., bulkhead, 200 tons, to United States Steel Products Co.

Rebuilding the vessel Chippewa at Seattle, Wash., 250 tons, to Lake Washington Shipyards.

Fidelity Mutual Life Insurance Co., Philadelphia, building, 1100 tons, to Jones & Laughlin Steel Corporation.

Metropolitan Edison Co., Reading, Pa., power plant, 700 tons, to Belmont Iron Works.

Theater and office building, 165th Street and Morris Avenue, New York, 150 tons, to Phoenix Bridge Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

American Sugar Refining Co., building, Brooklyn, 800 tons.

Platform extensions for subways, city of New York, 200 tons.

Southern Railroad, 12 bridges, 800 tons.

Highway bridge, Clinton, N. J., 300 tons.

Long Island Railroad, bridge at Sunnyside Yards, 500 tons.

Public Service Production Co., two buildings, one at Trenton and one at Athenia, N. J., 500 tons.

du Pont Engineering Co., power house, Weidman, N. J., 350 tons.

Cannon Mfg. Co., Kannapolis, N. C., 2000 tons.

City of Philadelphia, bridge under Reading Railroad, 300 tons.

Parker House, Boston, 2700 tons.

City of Dayton, Ohio, waterworks pump house, 100 tons; general contract to Frank Hill Smith, Inc., Dayton.

Indiana War Memorial, Indianapolis, 1000 tons; bids close Feb. 10.

Buckeye Savings & Loan Co., Columbus, Ohio, building, tonnage unknown; bids close Feb. 10.

De Pauw University, Greencastle, Ind., two dormitories, tonnage unknown; Robert Frost Daggett, Indianapolis, architect.

Eagle Avenue Bridge, Cleveland, 1400 tons.

Gas holder in Pennsylvania, 1100 tons.

Bridge across Rio Grande River, Eagle Pass., Tex., 1000 tons.

Frisco Lines, 1926 bridge program, 1200 tons.

Franklin Club, race track, Will County, Ill., 500 tons.

Cleveland Illuminating Co., Cleveland substation, 400 tons.

Leather Belt in Use 50 Years

A leather belt which has been in practically continuous use for 50 years at the Bernon Mills, Georgiaville, R. I., now owned and operated by the Manville-Jenckes Co., cotton goods manufacturer, has been the subject of an investigation by the Leather Belting Exchange, Forrest Building, Philadelphia. The belt, which was only recently discarded, was 130 ft. long, 42 in. wide, three ply, and was used as a main driver on a Corliss double horizontal type engine.

The belt was installed in November, 1876, and was used continuously on this drive until a few months ago, subject to the usual vicissitudes incident to such a drive. In 1911, when the belt had been run 35 years, it was thought desirable to remove the ply which had been next to the pulley and to add a new ply on the outside of the belt, but aside from this no other repairs were made. A few months ago a broken main shaft on the engine necessitated the removal of the belt, which had been operating in an entirely satisfactory manner up to that time, and inasmuch as the company had another idle belt of the same general dimensions, it was decided to substitute the idle belt and the 50-year-old belt was sold for $300 to be cut up into belts of smaller size.

This belt in 1876 cost $1,317.03 and the new ply which was added in 1911 cost approximately $600, making a total cost of $1,917.03. Deducting the $300, the total cost of the belt was reduced to $1,617.03, or a cost of $33.73 per year. During its lifetime it is estimated the belt had traveled 9,387,200 miles.

Open-Hearth Furnace Refractories

A study of requirements for open-hearth furnace refractories is being continued by the United States Bureau of Mines. The purpose of the investigation is to determine the conditions to which refractories are subjected in open-hearth steel furnaces. During the past year accurate determinations were made of the temperatures existing in various parts of a basic furnace. Temperature gradients through wall and roof bricks were also determined. A large number of dust samples were taken from the furnace gases in an attempt to determine their source and composition and the nature of their attack upon refractories. This work is to be supplemented during the fiscal year 1925 to 1926 by similar determinations on an acid furnace.

REINFORCING STEEL

Awards 3800 Tons and New Projects About 2200 Tons, Mostly Small Lots

Miscellaneous concrete reinforcing steel awards, reported for the past week, total about 3800 tons, of which the largest, 725 tons, is for special street construction in Chicago. New projects involve 2200 tons and include 700 tons for the San Jose-Vanderbilt Hotel at Jacksonville, Fla. Awards follow:

Concordia School, Milwaukee, 150 tons, to Concrete Engineering Co.

Office building, Lake Street and Michigan Boulevard, Chicago, 400 tons, to Olney J. Dean & Co.

Y. M. C. A. building, 1800 West Congress Street, Chicago, 109 tons for footings, to Jones & Laughlin Steel Corporation.

Maremont Mfg. Co., Sixteenth Street and Ashland Avenue, Chicago, 165 tons of rail steel, to Olney J. Dean & Co.

Iowa Memorial Building, Iowa City, Iowa, 100 tons, to Olney J. Dean & Co.

Tinker Toy, Inc., Evanston, Ill., factory building, 200 tons of rail steel, to Inland Steel Co.

Terre Haute junior high school, Terre Haute, Ind., 210 tons, to Hugh J. Baker & Co.

Apartment building, Dearborn Street and Maple Avenue, Chicago, 175 tons of rail steel, to Inland Steel Co.

Section 9, South Water Street, Chicago, double decking, 725 tons, to Kalman Steel Co.

Pere Marquette Building Co., New Orleans, tonnage unknown, to O. K. Oleson, New Orleans, for Laclede Steel Co.

Hotel Pickwick, San Diego, Cal., 300 tons, to an unnamed interest.

Vista Avenue Bridge, Portland, Ore., 300 tons, to an unnamed interest.

Frye Garage, Seattle, Wash., 100 tons, to Pacific Coast Steel Co.

Vance Hotel, Seattle, Wash., 220 tons, to Pacific Coast Steel Co.

Office building, Winston-Salem, N. C., 250 tons, to Concrete Steel Co.

Procter & Gamble Co., plant buildings, Port Ivory, Staten Island, N. Y., 400 tons, to Concrete Steel Co.

Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

Apartment building, Cornelia Avenue and Sheridan Road, Chicago, 400 tons; R. S. DeGolyer, architect.

Midwest Athletic Club, Chicago, 170 tons; general contractor, Evanholtz & Thorgenson.

Security Bank Building, Waukegan, 200 tons; A. Aschuler, architect.

Jacob Kulp Building, Chicago, 300 tons; A. Aschuler, architect.

Astor Street cooperative apartments, Chicago, 170 tons; A. Aschuler, architect.

Northwestern University, Chicago, Gary Library and Mayer Law School, 109 tons; J. B. French Co., Chicago, low bidder on general contract.

City of Dayton, Ohio, waterworks power house, 150 tons; general contract to Frank Hill Smith, Inc., Dayton.

Indiana State War Memorial, Indianapolis, tonnage unknown; bids close Feb. 10.

San Jose-Vanderbilt Hotel, Jacksonville, Fla., 700 tons.

MYSTERIOUS 'WHITE METAL'

Claims for Its Unusual Properties Found Worthless by Bureau of Mines

The mysterious "white metal," which many mineral prospectors in the West consider to have strange properties of hardening iron or steel when heated in contact with those materials, has no existence in fact, states the United States Bureau of Mines, following repeated experiments with purported specimens of the metal submitted for examination.

There is a legend that Mexicans and other old settlers in the Southwest knew of an "ore" which was packed around pieces of iron or steel that they wished to harden. The metal was heated in a wood fire in contact with the "ore" and then quenched in water. Axles of springless wagons so treated were said to have been made "glass hard," and to wear two or three times as long as ordinary axles, and tires so treated were described as "ringing like a bell" when suspended and struck with a hammer. This action was said to be due to a "white metal" that was extracted from the "ore" and alloyed with the iron by the treatment.

Although this story has never been shown to have had any fact as a basis, it appears from time to time under slightly different guises. As a result, for over 20 years, various laboratories at different times have received many kinds of rocks which have been claimed to give remarkable properties to metals, such as making them "glass hard," extremely tough, or resistant to corrosion.

The tests by the bureau and other laboratories, following the claimant's procedures, have usually shown no hardening effect, although in a few tests some hardening of iron or steel was produced, due either to case hardening from heating the metal in contact with carbon, protected from oxidation by a coating of flux, or in some instances to the formation of a crude silicon alloy. Many ordinary fusible rocks, and even fluxes without rock, will give these same results. Some claims of "glass hardness" for treated metal have obviously been based on hard slag which stuck to the metal being mistaken for hardened metal. The protection of treated iron against corrosion was sometimes improved by purifying the iron.

To summarize, it may be said that all authentic tests have given results that may be explained by the usual properties of the materials used. The Bureau of Mines is forced to conclude, therefore, that the various unsubstantial claims that have been made were due to careless tests, to erroneous conclusions from these tests, or to an attempt to defraud.

Further details are given in Information Circular No. 6000, "The Legendary 'White Metal' and Its 'Ore,'" by C. W. Davis, associate chemist, copies of which may be obtained from the Bureau of Mines, Washington.

How to Use Calcium Molybdate

"Calcium Molybdate" is the title of an interesting pamphlet issued by the Climax Molybdenum Co., 61 Broadway, New York, which discusses the use of this product as a steel addition in place of ferromolybdate. There is a foreword by J. Kent Smith on the advantages of calcium molybdate as a steel addition, followed by a discussion of calcium molybdate melting practice by Alan Kissock. Mr. Kissock discusses the subject under such heads as unit containers, melting practice and the addition of calcium molybdate to various types of furnaces.

The lake steamer Col. James Pickands, being built for the Interlake Steamship Co., which operates the fleet of Pickands, Mather & Co., was launched at the Lorain yard of the American Shipbuilding Co., Jan. 16. It is a 600-ft. boat. A duplicate freighter, to be named the Samuel Mather for the present head of Pickands, Mather & Co., will be launched in three weeks. The first lake vessel named for Col. Pickands was a wooden steamer of 1529 tons capacity, built in 1886.

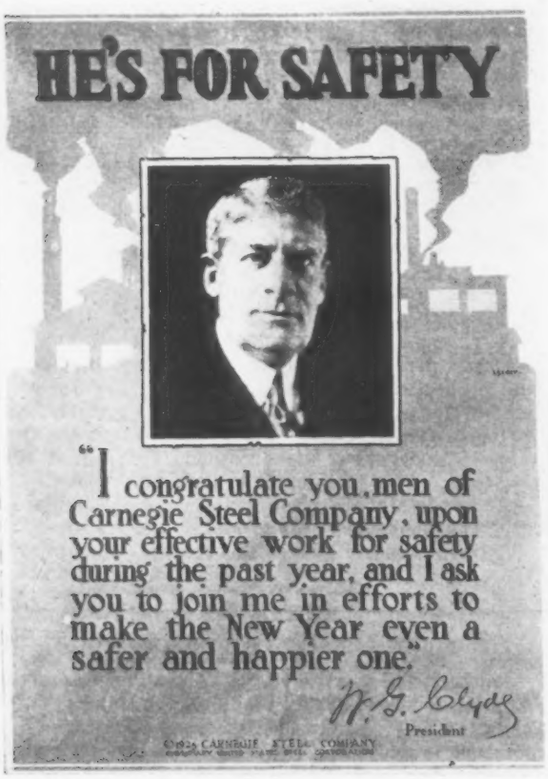
A series of lectures and discussions on the technique of personnel management is announced by the department of business management of the New York University School of Commerce, Accounts and Finance, Washington Square, New York. The course is known as Management 22, and the instructor in charge is Harold B. Bergen, manager personnel department Henry L. Doherty & Co., New York, and treasurer of the American Management Association.

Bridgeport Industrial Activity Continues at High Rate

The average number of factory-hours of labor employed in Bridgeport during January was nearly 2 per cent above normal (September, 1921) and the number of workers engaged showed a steady increase during the month until on Feb. 1 the number employed was about equal to that of mid-October. The percentage of man-hours employed was more nearly normal as compared with September, 1921, than at any time since April, 1924.

Maintains Own Art Department for Safety Propaganda

So great has become the demand for posters in connection with safety and welfare work that the Safety Bureau of the Carnegie Steel Co. has found it necessary to maintain its own art department. This department



How a Carnegie Poster Is Used to Show Man at the Top Is Interested in Safety

designs and executes original safety posters for the company bulletin boards, and its new year effort is one carrying a message from President William G. Clyde, with his portrait and signature to his message. One of the thoughts conveyed in this is the demonstration that the "man at the top" puts safety as of prime importance in the considerations of the day's work.

The increase of nearly 15 per cent in Canadian imports of American machinery in 1925 seems capable of betterment in the next 12 months, owing to the establishment of several new industries and the expansion of pulp and paper mills, mining operations and hydro-electric projects, together with plans for highway improvement in eastern Canada, according to Trade Commissioner Lynn W. Meekins, at Ottawa. Among the openings for machinery manufacturers are proposed smelters in some of the mining districts and three coke-making plants in Ontario and Quebec. The outlook for the sale of machine tools is considered bright, now that stocks have been reduced. The railroads are in a stronger financial position and general industrial activity is improving.

Pennsylvania Metal Industries Active—Bethlehem Dismantles Reading Plant

HARRISBURG, PA., Feb. 9.—Generally satisfactory conditions prevailed in the iron and steel trades of Pennsylvania during the last half of January, according to the semi-monthly report on labor conditions to R. H. Lansburgh, Secretary of Labor and Industry.

The situation is regarded as relatively good in the Pittsburgh district. While there has been no shortage of labor, except for patternmakers, there are more openings than there have been for some time. The recall system has been used considerably by some employers, and numerous former employees have resumed their former places.

Demands for mill laborers and mill workers is good at Johnstown. Steel car shops have increased their forces. The immediate future in iron and steel seems to be promising.

The charcoal furnace at the Ninth Street rolling mill of the Reading Iron Co., Reading, is working, and a second rolling mill will start operations soon. Two hundred and fifty men will lose employment as a result of dismantling the Reading plant of the Bethlehem Steel Co., the work of which has been transferred to Lebanon.

The Scranton area shops other than railroad repair shops are running at 10 per cent capacity.

Restores Part of Sheet and Tin Mill Wage Cut of September

The American Sheet & Tin Plate Co. has put into operation, effective from Feb. 1, a new wage scale for hot mill men, the immediate effect of which has been to restore the greater part of the reduction made last September. Sheet mill men get an advance of approximately 5 per cent, while the rates for hot tin mill men go up about 8 per cent from the recent wages. The reduction last September amounted to approximately 8 per cent, but this was a cumulative cut, as the company had ignored the results of two previous bimonthly settlements based on the examination of the sales records by the Amalgamated Association of Iron, Steel and Tin Workers of the companies operating under a signed wage agreement with that organization. This examination had disclosed lower average sales prices for Nos. 26, 27 and 28 gage black sheets. To have ignored the results of the July-August settlement would have meant wages in the mills of the company fully 10 per cent above those paid by competing companies.

Only about 24 per cent of the sheet mill and approximately 16 per cent of the tin mill capacity of the country is represented by the companies signing the wage agreement of the Amalgamated Association, but wages of all other companies are based on the scales of that organization and move in accordance with the results of the bimonthly examination of the sales records of the signatory companies. The examination covering the sales for the July-August period last year disclosed an average sale price of 3.10c. per lb. and produced such a low rate of wages that much dissatisfaction developed among the men throughout the entire sheet industry. The examinations for the September-October and November-December periods showed the same average price and consequently, there has been no change in the wages paid the sheet and tin plate crews, except that just announced by the American Sheet & Tin Plate Co.

The step was entirely voluntary by this company and is regarded as an illustration of the desire of the United States Steel Corporation to keep its mill men satisfied.

"An era of air transportation in this country paralleling the growth of the automotive industry and the radio art awaits primarily Federal support in the matter of airway facilities, their administration, and the elimination of needless restrictions," J. Walter Drake, Assistant Secretary of Commerce, stated, in making public the report on civil aviation of the Department of Commerce and American Engineering Council.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)	Lead		Zinc	
Feb.	Lake	Electrolytic*	New York	New York	St. Louis	New York	St. Louis
3.....	14.25	13.87½	62.25	9.25	9.10	8.42½	8.07½
4.....	14.37½	14.00	63.00	9.25	9.10	8.45	8.10
5.....	14.37½	14.00	63.12½	9.25	9.10	8.45	8.10
6.....	14.50	14.00	....	9.25	9.10	8.45	8.10
8.....	14.50	14.00	63.25	9.25	9.12½	8.42½	8.07½
9.....	14.50	14.00	63.50	9.25	9.12½	8.42½	8.07½

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, Feb. 9.

Prices are all steady to higher, with activity more pronounced in some markets than in others. The copper market is decidedly stronger because of fairly heavy buying and other developments. The tin market continues to advance, accompanied by good buying. The lead market is practically unchanged both as to prices and activity. Demand for zinc is very light but prices are firm.

Copper.—The feature of the market is the probability of the formation of a new export association which will embrace practically all of the leading producers. Negotiations have gone so far that a plan for such an organization has been proposed and placed before those interested. The natural result of the perfection of such an organization, it is pointed out, would be the closer control, indirectly, of export and foreign markets. This would in turn react favorably upon the domestic market and would, it is believed, tend to remove the frequent fluctuations in domestic prices. While there is at present a copper export association, it includes only a few of the leading producers. Buying since a week ago has been fairly heavy with estimates of total sales running as high as 50,000,000 lb., including both domestic and foreign business. Most of this was done at 14.12½c. to 14.25c. delivered, with a few sales late last week as high as 14.35c. and 14.37½c., delivered Connecticut Valley. Sales in the Middle West have been made at 14.50c., delivered. Business for export has been transacted on a basis of 14.32½c. to 14.35c., f.a.s., and some export dealers, who were short of the market, had to bid for the metal. Prices in London yesterday declined which put a damper upon the advance in this market and both yesterday and today business as a consequence has been light. The electrolytic market is firm at 14.25c., delivered. Lake copper is quoted at 14.50c., delivered.

Tin.—A good volume of business was done last week, the total approximating about 1300 tons, shared about equally between consumers and dealers. A feature is the scarcity of spot tin, the premium for which is nearly ¾c. over March delivery. Another interesting factor is contained in cabled estimates from London that there will be another decrease of about 1000 tons in the world's visible supply on March 1. This is pointed to in the trade as a bull argument. The market turned extremely quiet, approaching stagnation yesterday but today a fairly good business was done at 62.75c. for March and at 62c. for future deliveries. Spot Straits tin is quoted today at 63.50c., New York, nominal, which is 1½c. per lb. higher than a week ago. London prices are also higher by about £5 per ton than they were a week ago, with spot standard quoted at £284 10s., future standard at £279 and spot Straits at £286 10s. The Singapore price today was £285 5s. Arrivals thus far this month have been 1410 tons, with 7395 tons reported afloat. There were exports of five tons to Rio Janeiro.

Lead.—Very little change is noted in this market. The feature is the strength of the outside market at St. Louis but a weakness, which has developed abroad, may cause sooner or later a reduction in prices on this side. The quotation of the leading interest continues unchanged at 9.25c., New York, as its contract price, with evidence that this company is taking its full share of the business offered because some attempts to sell at 9.35c., New York, have been unsuccessful. We quote the market at 9.25c., New York, or 9.10c. to 9.15c., St. Louis.

Zinc.—Almost no business is reported nor any inquiries. Sellers are comfortably booked and are not pressing the market. The needs of consumers seem to be well taken care of for the present. The market remains fairly firm at 8.05c. to 8.10c., St. Louis, for prompt or nearby delivery, with March metal obtainable at 8c., St. Louis. New York quotations are 35 points higher respectively.

Nickel.—Ingot nickel in wholesale lots is quoted at 35c. with shot nickel at 36c. and electrolytic nickel at 39c. per lb.

Antimony.—The market for Chinese metal has been moderately active but is quiet now. Prompt metal is quoted at 21.50c. to 22c., New York, duty paid, with February arrivals at 21.50c., both nominal.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is obtainable in ingot form at 27c. per lb., delivered.

Old Metals.—Prices are following the changes in new metals. Business is fair. Dealers' selling prices, in cents per lb., are as follows:

Copper, heavy and crucible	13.75
Copper, heavy and wire	13.00
Copper, light and bottoms	11.75
Heavy machine composition	10.00
Brass, heavy	9.00
Brass, light	7.75
No. 1 red brass or composition turnings	9.25
No. 1 yellow rod brass turnings	9.375
Lead, heavy	8.50
Lead, tea	7.00
Zinc	5.75
Cast aluminum	21.50
Sheet aluminum	21.50

Chicago

FEB. 9.—The market is quiet with the exception of copper and tin which have advanced under the influence of more active demand. Zinc is slightly stronger whereas lead has weakened and antimony remains unchanged in an inactive market. The supply of old metals is adequate to meet the demand and the market is without feature. We quote, in carload lots: Lake copper, 14.50c.; tin, 64.25c.; lead, 9.20c.; zinc, 8.15c.; in less than carload lots, antimony, 24c. On old metals we quote copper wire, crucible shapes and copper clips, 11c.; copper bottoms, 9.25c.; red brass, 9c.; yellow brass, 8c.; lead pipe, 8c.; zinc, 5.25c.; pewter, No. 1, 37c.; tin foil, 44c.; block tin, 52c.; aluminum, 20c.; all being dealers' buying prices for less than carload lots.

Non-Ferrous Rolled Products

All brass and bronze products were advanced ¼c. per lb. as of Feb. 5. So also were copper products. Zinc and full lead sheets have not been changed in seven weeks. For New York warehouse prices see page 472.

List Prices Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight Up to 75c. Per 100 Lb. Allowed on Shipments of 500 Lb. or Over

Sheets	
High brass	19¼c.
Copper, hot rolled	22¾c.
Zinc	12c.
Lead (full sheets)	13c.
Seamless Tubes	
High brass	23¾c.
Copper	24½c.
Rods	
High brass	16⅞c.
Naval brass	19⅝c.
Wire	
Copper	16½c.
High brass	19⅝c.
Copper in Rolls	21⅝c.
Brazed Brass Tubing	27⅛c.

The Japanese have undertaken the manufacture of electrical machinery of the larger sizes, the Department of Commerce is informed in a consular report from Nagasaki.

PERSONAL

A. G. Smith, until a year ago superintendent of steel works, Trumbull Steel Co., Warren, Ohio, has been appointed superintendent of the steel works in charge of the open-hearth department and blooming mill, Columbia Steel Co., Butler, Pa. That company recently was merged with the Forged Steel Wheel Co., under the name of the Columbia Steel Co. Mr. Smith has been active for many years in the steel industry. He was for several years superintendent of the open-hearth department, Allegheny Steel Co., Brackenridge, Pa. He has assumed his new duties at Butler.

A. G. SMITH

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Robert J. Beler has joined the Pittsburgh sales office of Foote Brothers Gear & Machine Co., as assistant to W. G. Kerr, district representative.

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F. L. Dalzell has been appointed Cleveland district sales manager of the Ohio Injector Co., Wadsworth, Ohio, which has opened offices at 301 National Building, Cleveland.

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E. J. Hudson has been appointed manager of the blast furnace and lumber departments of the Cleveland-Cliffs Iron Co., Cleveland, with headquarters at Marquette, Mich., succeeding the late Austin Farrel. He had been assistant manager of the company's blast furnace department and previous to that its chief chemist.

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Fred A. Fenton, formerly with Joseph T. Ryerson & Son, Inc., 30 Church Street, New York, in the machine tool division, resigned recently and has opened an office at 30 Church Street, where he will act as manufacturers' representative in the New York territory.

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William H. Warren has resigned as general superintendent of the Trumbull Steel Co., Warren, Ohio. Charles H. Elliott, formerly superintendent of the South Side Works, Jones & Laughlin Steel Co., Pittsburgh, is now in charge of operations of the Trumbull company, with the title of vice-president. Mr. Warren was formerly general manager of the Brier Hill Steel Co., directing production, until its absorption by the Youngstown Sheet & Tube Co. Prior to his connection with the Brier Hill company, he was identified for many years with United States Steel Corporation subsidiaries, in operating departments. His plans for the future are not yet formulated.

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H. W. Rupple, assistant general manager Cleveland Automatic Machine Co., Cleveland, has been elected a director of that company, succeeding Richard LeBlond of Cincinnati.

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W. T. Brownscombe has resigned as assistant superintendent tin mills, Jones & Laughlin Steel Corporation, Woodlawn, Pa., to become superintendent McKeesport Tin Plate Co., McKeesport, Pa.

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J. A. Eves has been elected secretary of the Birchfeld Boiler Co., Tacoma, Wash., succeeding G. L. Banta, resigned.

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Freeman W. Stowe, formerly sales engineer for the Sivyer Steel Casting Co., Milwaukee, is now associated in the same capactiy with the Deemer Steel Casting Co., New Castle, Del. The change took place Feb. 1.

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E. O. Beardsley and W. F. Piper, of Beardsley & Piper Co., 2541 North Keeler Avenue, Chicago, manufacturer of "sand-slingers," will sail about Feb. 20 for a three-month trip to England, France, Germany and Belgium.

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John W. Greene, a graduate of the University of Washington, Seattle, has been appointed to a newly created research fellowship of the Carnegie Institute of Technology, Pittsburgh, to study "reactivity of coke." This fellowship, it is announced, is to be financed for the coming ten months by the American Gas Association. The appointment brings the total number of research fellowships in mining and metallurgy at the Institute to twelve. Four are being financed by the Institute, two by an advisory board of metallurgists, and the other six by funds provided by associations and industrial corporations.

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B. A. Tompkins, vice-president Bankers Trust Co., New York, has been elected a director of the Trumbull Steel Co., Warren, Ohio, replacing Whitney Warner, Cleveland.

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T. Holland Nelson has become associated with the Ludlum Steel Co., Watervliet, N. Y., in a consulting capacity in connection with the production of rust and corrosion-resisting iron and steel. Mr. Nelson is also vice-president William T. Bate & Sons Co., Conshohocken, Pa. He has been intimately connected with the development of rutless steel, both in this country and in England.

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George T. Gillette, who has been purchasing agent Celite Products Co., Los Angeles, for the past 13 years, has retired and J. W. McKenzie, secretary of the company, has assumed those duties.

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J. F. Lincoln, executive vice-president Lincoln Electric Co., Cleveland, has started on a six-week trip which will take him to important industrial territories in the country. He will address a number of meetings of the firm's sales agencies and technical societies interested in the progress made in the application of electric arc welding to production and in the structural field. Both in Los Angeles and in San Francisco Mr. Lincoln has been asked to address special meetings of the local chapters of the American Welding Society.

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J. F. Carper has joined the steam railroad department of the Electric Service Supplies Co., Chicago. He was previously employed by the Galesburg Machine Works and the Atchison, Topeka & Santa Fe Railroad

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C. G. Dunkle, secretary Pittsburgh section of the American Chemical Society, and a former chemist with the H. J. Heinz Co., Pittsburgh, has been appointed to a research fellowship in mining and metallurgy at the Carnegie Institute of Technology. This appointment fills a vacancy caused by the death of Benjamin E. Hess, Los Angeles, a graduate of California Institute of Technology, killed on Dec. 19 in a train wreck near Altoona, Pa. Mr. Dunkle, a graduate of the University of Pittsburgh, will continue the investigations in a study of flame propagation in natural gas and air. Under the plan in effect for several years the research work will be conducted in cooperation with the Pittsburgh Station of the United States Bureau of Mines and an advisory board of Pittsburgh district coal operators and engineers, with H. F. Coward, principal assistant of the Safety in Mines Research Board of England, and G. W. Jones, fuels chemist of the Bureau of Mines, directly in charge of the study of this problem.

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W. P. Davis, who has been general manager Knoxville Iron Co., Knoxville, Tenn., for the past ten years, has resigned and is succeeded by H. W. Van Benschoten, who has been assistant general manager for

some time. The company manufactures bar iron, bar steel angles, channels, steel stone saw blades, reinforcing deformed steel bars, saw mill track, etc. Mr. Davis has not yet decided upon future work, but expects to remain in Knoxville.

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L. B. Lindemuth left Vancouver on Feb. 10 for Australia, where he will spend possibly six months in a consulting capacity with respect to the operation of the plant of the Broken Hill Proprietary Co., New Castle, New South Wales. His partner, Frank D. Carney, Carney & Lindemuth, New York, is now at the plant in Australia, but will return to the United States on the arrival of Mr. Lindemuth.

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Edwin Corning, president Ludlum Steel Co., Watervliet, N. Y., has been elected chairman of the New York State Democratic committee. His active entrance into politics was made five years ago, when he became county leader at Albany. He is also treasurer of the Albany Felt Co., Albany. His grandfather, Erastus Corning, was the first president of the New York Central Railroad.

EDWIN CORNING

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A. R. Pinney has joined the sales force of the Bonney Forge & Tool Works, Allentown, Pa., manufacturer of chrome-vanadium wrenches. He has been assigned territory including Pennsylvania, New Jersey and Maryland.

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A. F. McClintock, recently with the Pittsburgh Crucible Steel Co. as California agent in the sale of oil-well steel, is again with the Reading Iron Co. as sales representative in charge of oil country pipe in the mid-continent and California fields, with headquarters at Los Angeles.

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John A. Denholm, Worcester, Mass., recently vice-president and sales manager of the Wickwire Spencer Steel Co., has become associated with the John M. Hart Co., Chicago, which has charge of the sales of a number of manufacturing industries. Among them is the Hanover Co., Hanover, Pa., manufacturer of wire cloth. Mr. Denholm will be in charge of this department. He was sales manager of the Wright Wire Co. for a number of years, and continued in the office after the consolidation as the Wickwire Spencer Co. He will make his home in Chicago.

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Henry D. Sharpe, treasurer Brown & Sharpe Mfg. Co., Providence, has been made vice-president and a director of the Providence Journal Co.

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J. H. Horigan, who has been with the Union Twist Drill Co., Athol, Mass., since its inception, and who is now chief engineer, has been elected secretary and a director of the company.

Fifty years ago the telephone was born. On March 7, 1876, Prof. Alexander Graham Bell was granted his original patent. In October of the same year Professor Bell talked over two miles of telegraph wire to Thomas Watson, who was located in Cambridge. The Boston-New York Line opened in 1884; New York and Chicago could converse by telephone in 1892; Denver was reached in 1911 and finally the circuits reached across the country to San Francisco in 1915. At this time Bell talked again with Watson over 3400 miles of telephone line. In April, 1921, the Key West-Havana submarine telephone cable was placed in service, and today a telephone call can be made from Catalina Island, in the Pacific Ocean, to Havana, a distance of 5500 miles.

Conference Devoted to Development of Southern Metal Resources

Opportunities in the South for mineral development, and Southern mineral tariffs, are among the subjects planned for discussion at the industrial development conference to be held in Memphis, Tenn., March 15 to 17, under the auspices of the Southern division of the American Mining Congress. The arrangements for the conference are in charge of William H. Lindsey, Napier Iron Works, Nashville, Tenn., chairman of the Southern division, and Dr. Henry M. Payne, consulting engineer to the mining congress, and acting secretary of the Southern division.

The purpose of the conference is to interest capital in the development of Southern resources. It is stated that there is plenty of capital available for the proper financing of legitimate industry and that the South contains an abundance of raw materials which are awaiting development and shipment through established ports to the growing markets of Latin America and the Orient. Conversion of these raw materials into finished products is stressed as the foremost question in the industrial growth of the South and will be a leading topic of consideration at the conference.

Other subjects which will be discussed are freight rates to new mining centers; retarding mineral development by erratic taxation; developments in electric smelting; power in industry; neglected issues in labor relations; development of branch line transportation; financing industrial developments, and the severance tax and its various applications. Addresses on economic problems will be a feature of the banquet to be held on the evening of March 16.

Governors of Southern States have been asked to appoint delegates to the conference and representatives of banking associations, chambers of commerce, State develpoment boards, manufacturers', railroad and other association are expected to attend. Applications for hotel reservations and reduced railroad rates may be obtained by application to the American Mining Congress, Washington, D. C., or to Dr. H. M. Payne, Chamber of Commerce, Memphis, Tenn.

German Steel Rebates Get Treasury Department Attention

WASHINGTON, Feb. 9.—Rebates paid in Germany on steel for export have been formally called to the attention of the Customs Division, Treasury Department, with a view to having the division conduct an investigation for the possible application fo a countervailing duty. It will be recalled that the division for some time has had under way an inquiry regarding dumping of German steel, including such products as soft steel bars, reinforcing steel bars, and structural shapes.

The real estate and other property of the Springfield Automatic Screw Machine Corporation, Fitchburg, Mass., has been acquired by M. A. Coolidge of that city, who will conduct the business as the Fitchburg Automatic Machine Co., Fitchburg. The property of the Springfield company has been in the hands of trustees for about four years. B. J. Macker, formerly with the Springfield company, will be in charge of the new company. The manufacture of automatic screw machines will be continued and a service department has been established to supply present users repair parts and equipment.

The World Court and our foreign loans were discussed by Hon. William M. Butler, United States Senator from Massachusetts, at the thirty-third annual banquet of the New England Iron and Hardware Association on Thursday evening, Jan. 28, at Hotel Somerset, Boston, which was attended by more than 200, the largest number noted in something like ten years.

OBITUARY

SAMUEL D. LATTY, brief mention of whose death on Jan. 31, was made last week, was born in Raynham, Mass., Sept. 12, 1864, going to Cleveland in 1886. In 1890 he became sales manager National Screw & Tack Co. Five years later he started a business of his own, the outgrowth of which is the Kirk-Latty Mfg. Co., which has grown into one of the largest bolt, nut and rivet manufacturing concerns. In 1898 it became an incorporated company. Mr. Latty, at the time of his death, was president and general manager. He was active in various associations, such as the American Hardware Manufacturers, of which he was an officer for many years, as well as the Farm Implement and Stove Manufacturers' associations. He was a member of the Cleveland Chamber of Commerce and the Chamber of Industry and of several clubs.

SAMUEL D. LATTY

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WIBLE LAWRENCE MAPOTHER, president Louisville & Nashville Railroad, Louisville, died suddenly of heart disease in Panama City, Canal Zone, on Feb. 3. He was born in Louisville in 1872 and entered the service of the Louisville & Nashville Railroad at the age of 16, advancing rapidly until he attained the presidency in 1921. During the World War he was federal manager of the Louisville & Nashville and a number of other carriers operating in Southern States.

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HOWARD L. CHANDLER, vice-president Delaware Steel Products Co., died suddenly at his home in Swarthmore on Feb. 1. He was a member of the Manufacturers' Club. Mr. Chandler was 67 years old.

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A. PARKER NEVIN, since 1912 secretary and director of the Watson-Stillman Co., New York, died on Feb. 2 after a few days' illness of pneumonia. Mr. Nevin was born at Ridley Park, Pa., April 6, 1875, and was a Princeton graduate of the class of 1895. For many years he was counsel of the National Association of Manufacturers, where he made many acquaintances among executives of the iron and steel industry.

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LIEUT. JOHN ALBERT TOBIN, inventor of Tobin bronze, was buried on Feb. 3 from his home in Providence, R. I. He was born in Rhode Island, Aug. 31, 1849.

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WILLIAM H. STEARNS, president and general manager W. H. Stearns Stamping Co., Worcester, Mass., manufacturer of metal stampings, died at Worcester, Feb. 4, after a brief illness, at the age of 55 years. He was born in Worcester, July 10, 1870, and as a young man learned the stamped metal trade. Twenty years ago he established the business which bears his name. He was a thirty-second degree Mason.

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LIEUT.-COL. LLOYD G. MCCRUM, president Richmond Radiator Co., 1480 Broadway, New York, died on Feb. 2, in his 49th year. He was one of the most prominent figures in the boiler and radiator industry. Colonel McCrum was born in August, 1877, in Ohiopyle, Pa. He organized a company that took over the management of the Uniontown Acme Radiator Co. and amalgamated with the Richmond boiler plant at Norwich, Conn. He built the enamelware plant at Uniontown and associated these industries with the vacuum cleaner business, in which he was a pioneer. During the World War he was in charge of production of the Government war plant at the Rock Island Arsenal. In September, 1922, Colonel McCrum became general manager Richmond Radiator Co., in the formation of which he played an active part. In February, 1925, he was elected president of the company. He was particularly active in the civic affairs of Uniontown, Pa.

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AMOS HUBBEL COBB, aged 52, widely known in the canning industry for his connection with the sanitary can, died in Louisville, Feb. 5, having contracted pneumonia after attending the annual convention of the National Canners' Association there last month. With his brother, George W. Cobb, he founded the Sanitary Can Co., Fairport, N. Y., the first to produce successfully the present type of sanitary can for food preservation. Upon the merging of that concern with the American Can Co., George W. Cobb became general manager of sales and Amos H. Cobb became secretary-treasurer of the New York Canners, Inc. His home was in Rochester, N. Y. He was a graduate of Colgate University and prominent in Rochester clubs.

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The will of Prof. William W. Bird, of Worcester, Mass., until two years ago head of the department of mechanical engineering of the Worcester Polytechnic Institute, gives $100,000 to the Institute to establish the William W. Bird Foundation, the income of which shall be devoted to paying the tuition of selected first-year students. The fund does not become operative until the death of testator's wife, to whom the income will go during her lifetime. Professor Bird, who was an alumnus of the Institute, class of 1887, died on Jan. 24, as noted in our Jan. 28 issue.

Beneficiation of High-Silica Iron Ores

The purpose of an investigation being conducted at the Southern experiment station of the Bureau of Mines, Department of Commerce, Tuscaloosa, Ala., is to develop means of treating low-grade high-silica iron ores of the South, and particularly of the Birmingham district, whereby they may be rendered available for blast furnace use. With the development of satisfactory methods of treatment will come a large increase in the iron ore reserves. The purpose of the four studies is:

During the past fiscal year considerable work was done on the red and gray hematite. Tests have been completed on samples of ore from a number of localities in the red ore district of Alabama. Additional samples are being obtained for further tests. Good metallurgical results have been obtained on all samples of red and gray hematites tested. Work on the brown ores was started late in the year, with good results to date. In the study of gray ores, work was completed on ores from part of the Talladega district, and begun on ores from other localities. The results of the flue dust investigation, which is practically completed, are irregular due to the many variables of the samples.

High-silica red ores, to remove part of the insolubles of the ore with a minimum loss of iron, thereby increasing the iron content in the product going to the blast furnace.

High-silica, specular gray hematite, similar to that for the high silica red ores.

Low-grade brown ores, to develop a coarse treatment for removal of clay, gravel and chert.

Blast furnace flue dust, to remove enough carbon and insoluble material from the flue dust to make a concentrate high enough in iron for blast furnace use.

"Practical Foundry Cost Accounting" is the subject of a talk to be given by E. T. Runge, Cleveland, at the regular monthly meeting of the Pittsburgh Foundrymen's Association at the Fort Pitt Hotel, Pittsburgh, Monday evening, Feb. 15.

Revise Scrap Specifications

(*Continued from page* 412)

free from badly rusted and corroded stock. Must be clearly specified as detinned scrap and classified as above under O, P, Q or R, according to the manner in which it is prepared for shipment. Further limitation of silicon content may be made by mutual agreement between buyer and seller.

U. Electrical Sheet Scrap.

New, clean steel sheet scrap, composed in whole or in part of material from 0.50 per cent to 1 per cent silicon. Must be clearly specified as electrical sheet scrap and be classified as above under O, P, Q or R, according to the manner in which it is prepared for shipment.

V. High Silicon Sheet Scrap.

New, clean steel sheet scrap, composed in whole or in part of material over 1 per cent silicon. Must be clearly specified as high silicon sheet scrap and be classified as above under O, P, Q and R, according to the manner in which it is prepared for shipment.

W. No. 1 Cast Iron Scrap.

To contain all kinds of machinery and similar cast iron scrap, nothing under 10 lb. or over 500 lb. in weight nor over 48 in. long or 18 in. wide. To contain no brake shoes, cast iron soil or water pipe, stove scrap or burned iron of any description, and be free from steel parts.

X. No. 2 Cast Iron Scrap.

To contain all kinds of agricultural implements of cast iron, free from steel parts, nothing under 10 lb. or over 500 lb. in weight nor over 48 in. long or 18 in. wide. To contain no stove scrap or burned iron of any description.

Y. No. 3 Cast Iron Scrap.

To consist of cast iron scrap with steel parts attached, nothing under 10 lb. or over 500 lb. in weight, nor over 48 in. long or 18 in. wide.

Z. Heavy Breakable Cast Scrap.

Heavy cast iron suitable for breaking under and with buyer's drop. Pieces not to exceed 10 tons in weight. Free from anvil blocks, hammer bases and like material, over charging box size and containing no burnt iron or brake shoes.

Low-Phosphorus and Low-Sulphur Steel Scrap for Use In Acid Open-Hearth Furnaces

A. Billet and Bar Crops.

Billet, bloom, axle, heavy forge or bar crops, not over 0.04 per cent phosphorus or sulphur, not over 0.50 per cent silicon, free from alloys. Not less than 2 in. square or diameter, not over 18 in. wide and sheared to lengths not over 36 in. No piece to weigh less than 10 lb., or more than 500 lb. Must be new material and free from excessive rust. Longer lengths may be allowed by mutual agreement between buyer and seller.

B. Plate Crops.

Plate crops, or sheet bar crops, not over 0.04 per cent phosphorus or sulphur, not over 0.50 per cent silicon, free from alloys. Not less than ¼ in. thick, not over 18 in. wide and sheared to lengths not over 36 in., and no piece to weigh less than 10 lb. or more than 350 lb. To be free from needle and sliver stock. Must be new material and free from excessive rust. Longer lengths may be allowed by mutual agreement between buyer and seller.

C. Structural and Miscellaneous Scrap.

Bar ends, forging crops, structural crops, and plate shearings smaller and lighter than grade A and B, not over 0.50 per cent silicon, free from alloys. Not less than ¼ in. thick, not over 18 in. wide or 36 in. long and 0.04 per cent phosphorus. To be fully described at time of sale and purchase. Must be clean and free from excessive rust. Longer lengths may be allowed by mutual agreement between buyer and seller.

D. Tube Scrap.

Tube scrap, seamless or welded, not over 0.04 per cent phosphorus or sulphur, free from alloys. Not less than No. 12 gage thickness of wall; if over 6 in. inside diameter they must be mashed flat, and sheared to lengths not over 36 in. Must be only new material that has not been in use for any purpose and free from excessive rust.

E. Punchings.

Punchings from plate and structural steel scrap, not less than ¼ in. thick and not less than ½ in. diameter, not over 0.04 per cent phosphorus or 0.05 per cent sulphur, not over 0.50 per cent silicon, free from alloys. Must be free from dirt and excessive rust or corrosion.

F. Car Wheels.

Solid cast steel, forged, pressed or rolled steel car and locomotive wheels, not over 36 in. in diameter.

G. Spring Steel Scrap.

Coil and elliptic steel springs, made of material not less than ⅜ in. in diameter or ¼ in. in thickness, not over 18 in. wide and sheared to lengths not over 48 in. May be assembled or cut apart.

H. Knuckles and Couplers.

Railroad car and locomotive steel couplers, knuckles and locks stripped clean of all other attachments. Gates, heads and risers may be included by mutual agreement between buyer and seller.

I. Scrap Tires.

Steel tires from car and locomotive wheels, cut to not over 24 in. long.

J. Car Bolsters.

Railroad car steel bolsters and side frames, stripped clean of all iron attachments. Not over 24 in. wide and cut to lengths not over 48 in.

K. Medium Silicon Scrap.

High-silicon billet, bloom, bar crops, plate crops or sheet bar crops, not over 0.04 per cent phosphorus or sulphur, not less than 0.50 per cent or over 2 per cent silicon, free from other alloys, not less than ¼ in. thick, not over 18 in. wide and 36 in. long, and no piece to weigh less than 10 lb., or more than 500 lb. To be free from needle and sliver stock. Must be new material and free from excessive rust.

L. High-Silicon Scrap.

High-silicon billet, bloom, bar crops, plate crops or sheet bar crops, not over 0.04 per cent phosphorus or sulphur, not less than 2 per cent or over 4.50 per cent silicon, free from other alloys, not less than ¼ in. thick, not over 18 in. wide and 36 in. long, and no piece to weigh less than 10 lb. or more than 500 lb. To be free from needle and sliver stock. Must be new material and free from excessive rust.

M. High-Nickel Scrap.

Nickel steel billet, bloom, bar crops, or other shapes of similar section and equal grade, not over 0.04 per cent phosphorus or sulphur, between 3 per cent and 3.50 per cent nickel (lower or higher in nickel content to be duly considered), free from other alloys. Not less than 2 in. square or diameter, not over 18 in. wide and cut to lengths suitable for charging boxes of buyers, and no piece to weigh less than 25 lb. Must be clean material.

N. No. 1 Chrome Nickel Scrap.

Chrome nickel steel billet, bloom, bar crop, or other shapes of similar section and equal grade, not over 0.04 per cent phosphorus or sulphur, between 3 per cent and 3.50 per cent nickel (lower or higher nickel content to be duly considered), not over 0.50 per cent chrome, free from other alloys. Not less than 2 in. square or diameter, not over 18 in. wide and cut to lengths suitable for buyers' charging boxes and no piece to weigh less than 25 lb. Must be clean material.

O. No. 2 Chrome Nickel Scrap.

Chrome nickel steel billet, bloom, bar crops, or other shapes of similar section and equal grade, not over 0.04 per cent phosphorus or sulphur, between 1.50 per cent and 2.50 per cent nickel (lower or higher nickel content to be duly considered), between 0.50 per cent and 1 per cent chrome, free from other alloys. Not less than 2 in. square or diameter, not over 18 in. wide and cut to lengths suitable for buyers' charging boxes and no piece to weigh less than 25 lb. Must be clean material.

P. Light Chrome Nickel Scrap.

Nickel or chrome nickel steel of the analyses and descriptions as shown for grades L, M, N and O, except it may be lighter and of miscellaneous shapes. To be fully described at time of sale and purchase.

Q. Special Chrome Nickel Scrap.

Nickel or chrome nickel steel of the analyses and descriptions as shown for grades L, M, N and O, except the phosphorus and sulphur may go up to, but not over, 0.05 per cent. To be fully described at time of sale and purchase.

R. Nickel Steel Turnings.

Heavy short first cut turnings from nickel steel forgings. Nickel and chrome content to be specified on each individual sale. To weigh not less than 75 lb. per cu. ft. To be free from dirt and other foreign materials.

Scrap For Use In Electric Furnaces

(Alloy steel scrap may be excluded from the specifications by mutual agreement between buyer and seller).

A. Punchings and Clippings.

Open-hearth steel punchings and clippings, ¼ in. and heavier, 4 in. and under in length. Not over 0.04 per cent in phosphorus or sulphur, and suitable for shovel charging. Must be clean and free from galvanized or coated stock, dirt and excessive rust or corrosion.

B. Guaranteed Heavy Scrap.

Open-hearth steel plates, structural shapes, crop ends, shearings, broken steel tires, knuckles, tool steel and spring steel. To be not less than ¼ in. thick, other dimensions subject to agreement. Not over 0.04 per cent in phosphorus or sulphur, clean, free from excessive rust and corrosion and containing no foreign material.

C. Unguaranteed Scrap.

Steel plate, shearings, nut and bolt punchings, short rails and other similar material, not less than ¼ in. in thickness, and not over 12 in. in width or length. Not guaranteed under 0.04 per cent phosphorus or sulphur. To

be suitable for hand charging. Must be free from galvanized and coated stock, foreign material, and excessive rust or corrosion.

D. Guaranteed Axle Turnings.

Heavy steel or iron axle or forge turnings, guaranteed not over 0.04 per cent in phosphorus or sulphur. To contain no foreign material and must be clean and free from excessive rust and corrosion. To weigh not less than 75 lb. per cu. ft.

E. Unguaranteed Turnings.

Short, heavy shoveling steel or wrought iron turnings or rail chips, not guaranteed under 0.04 per cent in phosphorus or sulphur. To contain no foreign material and must be free from excessive rust or corrosion. To weigh not less than 75 lb. per cu. ft.

Scrap For Use In Gray Iron Foundry Practice

A. No. 1 Machinery Cupola Scrap.

Clean machinery cast iron scrap. Must be cupola size, not over 24 in. x 30 in. in any dimension and no piece to weigh over 150 lb.

B. No. 1 Machinery Breakable Scrap.

Clean machinery cast iron scrap, weighing over 150 lb. and which can be easily broken by an ordinary drop into cupola size.

C. No. 1 Standard Cupola Scrap.

Clean cast iron scrap, such as columns, pipes, plates, and castings of miscellaneous nature, but free from stove plate and agricultural scrap. Must be cupola size, not over 24 in. x 30 in. in any dimension, and no piece to weigh over 150 lb. Must be free from foreign material. A. R. A. classification No. 15 will be acceptable.

D. No. 1 Standard Breakable Scrap.

Clean cast iron scrap, such as columns, pipes, plates, and castings of miscellaneous nature, weighing over 150 lb., and which can be broken by an ordinary drop into cupola size.

E. Burnt Cast Scrap.

Burnt cast iron scrap, such as grate bars, stove parts, and any miscellaneous burnt scrap. Must be cupola size, not over 24 in. x 36 in. in any dimension, and no piece to weigh over 150 lb. A. R. A. classification No. 18 will be acceptable.

F. Stove Plate Scrap.

Clean cast iron stove plate. Must be free from malleable and steel parts, window weights, plow points, grates, burnt iron, etc.

G. Agricultural Scrap.

Cast iron parts of agricultural machinery, including plow points. Must be free from steel, malleable and full chilled iron.

H. Cast Iron Car Wheels.

Cast iron car and locomotive wheels. A. R. A. classification No. 54 will be acceptable.

I. Brake Shoes.

Driving and car brake shoes of all types, except composition filled shoes. A. R. A. classification No. 19 will be acceptable.

J. No. 1 Radiator Scrap.

Broken radiator castings, cupola size, with all steel, malleable and other parts removed. Must be free from excessive scale, rust and corrosion.

K. No. 2 Radiator Scrap.

Unbroken radiator castings. Must be free from excessive scale, rust and corrosion.

L. No. 1 Malleable Scrap.

Malleable parts of automobiles, railroad cars and miscellaneous malleable castings. Must have undergone the annealing process. Must be free from steel and cast iron parts, and malleable pipe fittings. A. R. A. classification No. 30 will be acceptable.

M. No. 2 Malleable Scrap.

Malleable parts of agricultural implements, and other miscellaneous malleable castings. Must have undergone the annealing process. Must be free from steel and cast iron parts.

Scrap For Use In Bessemer Converters

A. Mild Steel Converter Scrap.

Mild open-hearth steel scrap, such as structural shapes, rolling mill crop ends, forgings and forge crop ends. No piece to weigh over 150 lb. or less than 10 lb., not under ⅜ in. section, and must not exceed 24 in. in any one dimension. Must be free from excessive rust or corrosion.

B. High-Carbon Steel Converter Scrap.

High-carbon or hard steel scrap, such as steel rails and material of similar analysis. No piece to weigh over 150 lb. or less than 10 lb. and must not exceed 24 in. in any one dimension. Must be free from excessive rust or corrosion.

C. Steel Spring Scrap.

Coil and leaf springs, made from stock ⅜ in. in thickness or heavier. Elliptical springs must be cut apart, and must not exceed 24 in. in length. Must be free from plates, and from excessive rust or corrosion.

Miscellaneous Scrap Specifications

A. Crucible Steel Scrap.

Boiler steel punchings, under 0.04 per cent in phosphorus or sulphur. This is a basic classification for crucible steel scrap. In the event any other material is specified, no piece shall exceed 5 in. in width or 8 in. in length. In the event that small soft steel castings are specified as crucible scrap, the weight shall not exceed 10 lb. per piece.

B. Chemical Borings.

Clean, fine, dry cast iron borings free from oil and grease. Shall contain no lumpy or rusty stock, and be free from other metals.

Proposed Specifications Covering Iron and Steel Scrap for the Iron Rolling Mills

A. Iron Axles.

Iron railroad car axles; A. R. A. sizes, free from locomotive axles and defective or imperfect forgings.

B. Steel Axles.

Steel railroad car axles; A. R. A. sizes, free from locomotive axles and defective or imperfect forgings.

C. Steel Locomotive Axles, all sizes.

D. Iron Rails.

Standard section tee rails, original weight 40 lb. per yd. or heavier, minimum length 4 ft.; free from frog, guard, switch and curved rails.

E. Steel Rails for Rerolling.

Standard section steel tee rails, 50 lb. per yd. and heavier, 5 ft. long and over. Free from bent and twisted rails, frog, switch and guard rails and rails with split heads and broken flanges.

F. Shafting.

Iron and soft steel, 1½ in. to 8 in. in diameter; 30 in. and longer in straight bars.

G. Arch Bars.

Iron railroad arch bars and transom bars.

H. Iron Angle or Splice Bars.

Wrought iron—50 per cent to be whole bars.

I. No. 1 Railroad Wrought.

Heavy wrought iron and soft steel scrap from railroad shops and cars, 6 in. and longer, including iron links and pins; flats ¼ in. thick and over; rounds and squares, ⅜ in. thick and over; free from any riveted material.

J. No. 2 Railroad Wrought and Track Scrap.

Heavy wrought iron and soft steel scrap from railroad shops and cars, under 6 in. long, but including tee plates, track bolts, spikes and nuts. All to be free from steel shapes and plates.

K. No. 1 Yard Wrought.

Iron and soft steel scrap suitable for piling purposes without further preparation. Material to be ⅜ in. or heavier, 4 in. or narrower and not over 26 in. in length or shorter than 8 in. May include wagon tire if cut into 6 in. lengths, or shorter. Must be straight and flat; also free from plate, sheet, hoop and washer scrap punchings and similar material.

L. No. 2 Yard Wrought.

Wrought and soft steel bar, shape and plate ends, punchings and shearings, under 8 in., free from curly clippings and hard steel, all suitable for fagoting.

M. No. 1 Busheling.

Clean wrought iron and soft steel pipes and flues, tank and bands No. 12 and heavier, boiler plate punchings and clippings; nothing to be over 8 in. long or wide, free from galvanized or tinned stock.

N. No. 2 Busheling.

Cut hoops, sheet, cotton ties and similar light material; nothing to be over 8 in. long or wide; free from dirt, galvanized or tinned material, or other similar inferior scrap.

O. Pipes and Flues.

Wrought iron and soft steel pipe 1 in. in diameter and over, and 24 in. in length and over. Must be free from dirt, corrosion, or lime and from riveted seams.

P. No. 1 Mill.

Wrought iron and soft steel bars not less than ⅝ in. round or square, and flats no thinner than No. 12 wire gage, including heavy railroad sheet; tanks in separate sheets and rings, boiler sheet and rings, clean pipes and flues, heavy punchings and clippings and strictly soft steel agricultural implement shapes.

Q. No. 2 Mill.

Wrought iron and soft steel hoops and sheets, railroad sheets, cotton tie clippings and ties; cut smoke stacks, band iron and steel; scoops and shovels (free from wood); skeleton sheet scrap and iron too light for No. 1 mill. Must be free of wire rope, cushion and other similar springs, lime encrusted pipe and flues from boilers, galvanized, tinned or badly rusted material.

R. Turnings.

Wrought and soft steel, clean and free from other metals, dirt, lumps and badly tangled material.

S. Cast Iron Borings.

Clean and free from other metals, dirt and lumps.

T. No. 1 Cast Iron.

To be all clean cast iron machinery scrap, nothing under 5 lb., nor over 75 lb. in weight; not over 24 in. long, or 12 in. wide. To contain no brake shoes, cast iron soil or drain pipe, cast iron columns, stove scrap or burnt iron of any description and to be free from steel parts.

U. No. 1 Boiler Plate.

Boiler sheets and rings ¼ in. to ¾ in. thick, cut apart and free from rivets; no single piece to weigh over 500 lb.

V. No. 1 Forge Fire Stock.

New bundled black sheets or skeleton steel bundled cotton ties or wool ties, free from other metals or coated stocks, in bundles not over 18 in. in diameter and 30 in. long. Bundles compactly made and securely wired.

NOTE: Material on all of above grades, unless otherwise specified, must be free from high-carbon or alloy steel. Soft steel herein mentioned is considered to mean 0.20 per cent carbon and under.

MANGANESE IN 1925

Domestic Ore Shipments Increased—Ore Imports Expanded—Manganiferous Ores

Domestic shipments of manganese ore, according to preliminary figures compiled by the United States Bureau of Mines for 1925, containing 35 per cent and more of metallic manganese, totaled approximately 97,500 gross tons, valued at $1,853,000. This is an increase of 73 per cent over 1924; the tonnage produced in 1924 was 56,515, valued at $1,307,477. The difference in value of the two years as given is due to the fact that the ratio of the production of chemical ore to that of metallurgical ore decreased, while the production of chemical ore remained relatively constant for the two years.

In 1925, the Butte, Mont., district shipped 47,856 tons. This ore was rhodochrosite and was utilized in the manufacture of ferromanganese. Very large increases were made in shipments of high grade manganese ore from Montana and Virginia with smaller increases from Washington, New Mexico and Georgia. The most notable decrease for the year was in Colorado. After May, 1925, only one company was active in the Leadville, Colo., district and its production was manganese ore and manganiferous ores.

Figures furnished by the Bureau of Foreign and Domestic Commerce show that during the first 11 months of 1925, the metallic manganese content of the manganese ore imported amounted to 242,009 tons. The imports from Cuba for 11 months were 8182 tons of manganese ore. For the first 11 months the manganese content of the imports of ferromanganese and other alloys, exclusive of spiegeleisen, was given as 68,164 tons. Assuming an average of manganese content of 48 per cent for all ores imported, the gross weight of ore imported, including that of Cuba, during this period was approximately 512,000 tons. If the imports in December were equivalent to those in November then the total would be about 582,000 tons as compared with 505,000 tons in 1924, calculated on the same tenor of ore. The 1924 imports of ferromanganese (manganese content) were 45,270 tons.

The metallic manganese in the imports of ore from the Caucasus (Russia) amounted to 89,994 tons for the first 11 months of 1925, over double the quantity imported for the entire year of 1924, or 41,097 tons of metallic manganese. This difference is partially made up by the fact that no imports for 1925 can be credited to Turkey, while in 1924, 52,557 tons were reported from that country which should have been credited to the Caucasus for 1924. The imports of ore from Brazil for the first 11 months of 1925 contained 87,229 tons of manganese as compared with 54,938 tons for the entire year of 1924; imports from British India show a decided decrease for 1925, figures being 22,873 tons imported for the first 11 months of 1925 as compared with 54,566 tons for the entire year of 1924; imports from Gold Coast of West Africa (British) for the first 11 months of 1925 were 31,750 tons as compared with 23,034 tons in 1924.

The shipments of domestic ores, carrying from 10 to 35 per cent manganese, decreased in 1925, from 286,470 tons, valued at $929,390, to approximately 265,000 tons, valued at $827,000. The decrease is due to the large falling off in production in Colorado and Minnesota, whereas in Michigan and New Mexico decided increases were made.

The domestic shipments of ores containing 5 to 10 per cent manganese show an increase over 1924 production of nearly 100 per cent. The consumption of manganiferous iron ores for use in blast furnace practice is responsible for this increase. The shipments of this class of ore amounted to 1,156,000 tons in 1925, valued at $2,815,000 compared with 587,026 tons in 1924, valued at $1,713,943. The shipments from Minnesota increased from 361,527 tons in 1924, to 742,000 tons in 1925, and those from Wisconsin from 175,316 tons to 404,213 tons.

Imports of Spiegeleisen in 1925

According to data furnished by the iron and steel division of the Bureau of Foreign and Domestic Commerce, imports of spiegeleisen into the United States during 1925 were as follows in gross tons:

		Tons	Value
Jan.	United Kingdom	550	$17,697
Feb.	.....	...	.....
March	United Kingdom	75	7,210
April	United Kingdom	75	2,394
May	United Kingdom	100	3,600
June	United Kingdom	100	3,600
July	.....	...	.....
Aug.	.....	...	.....
Sept.	.....	...	.....
Oct.	.....	...	.....
Nov.	United Kingdom	190	5,340
Dec.	.....	...	.....
	Total	1,090	$39,841

The value of the British spiegeleisen was therefore about $36.55 per ton. This is higher than the American product but its importation is possible in certain cases where location and freight are a disadvantage to the American seller.

The Richmond Iron Works, Richmond Furnace, Mass., has sold 200 acres of land on which its furnace stands, to private parties, who will not operate the furnace. Thus the last of New England's charcoal pig iron furnaces passes from existence, the Salisbury Iron Corporation, Lime Rock, Conn., having recently sold out to New York interests. The Richmond furnace was started in 1829, had an annual capacity of 5000 tons and, until the ending of the war, operated with comparatively few interruptions. Since the war the high cost of charcoal forced the company to suspend operations. For something like 40 years the Pennsylvania Railroad took the output for the manufacture of car wheels.

A small pamphlet, entitled "Silicious Ores," has been prepared by Clement K. Quinn & Co., Duluth, Minn. It gives certain facts regarding two grades of this class of ore which are available and which have been carefully prepared for blast furnace use. The two grades referred to are the "Kruse" and the "Empire" and analyses of each one are given in the leaflet.

be suitable for hand charging. Must be free from galvanized and coated stock, foreign material, and excessive rust or corrosion.

D. Guaranteed Axle Turnings.

Heavy steel or iron axle or forge turnings, guaranteed not over 0.04 per cent in phosphorus or sulphur. To contain no foreign material and must be clean and free from excessive rust and corrosion. To weigh not less than 75 lb. per cu. ft.

E. Unguaranteed Turnings.

Short, heavy shoveling steel or wrought iron turnings or rail chips, not guaranteed under 0.04 per cent in phosphorus or sulphur. To contain no foreign material and must be free from excessive rust or corrosion. To weigh not less than 75 lb. per cu. ft.

Scrap For Use In Gray Iron Foundry Practice

A. No. 1 Machinery Cupola Scrap.

Clean machinery cast iron scrap. Must be cupola size, not over 24 in. x 30 in. in any dimension and no piece to weigh over 150 lb.

B. No. 1 Machinery Breakable Scrap.

Clean machinery cast iron scrap, weighing over 150 lb. and which can be easily broken by an ordinary drop into cupola size.

C. No. 1 Standard Cupola Scrap.

Clean cast iron scrap, such as columns, pipes, plates, and castings of miscellaneous nature, but free from stove plate and agricultural scrap. Must be cupola size, not over 24 in. x 30 in. in any dimension, and no piece to weigh over 150 lb. Must be free from foreign material. A. R. A. classification No. 15 will be acceptable.

D. No. 1 Standard Breakable Scrap.

Clean cast iron scrap, such as columns, pipes, plates, and castings of miscellaneous nature, weighing over 150 lb., and which can be broken by an ordinary drop into cupola size.

E. Burnt Cast Scrap.

Burnt cast iron scrap, such as grate bars, stove parts, and any miscellaneous burnt scrap. Must be cupola size, not over 24 in. x 36 in. in any dimension, and no piece to weigh over 150 lb. A. R. A. classification No. 18 will be acceptable.

F. Stove Plate Scrap.

Clean cast iron stove plate. Must be free from malleable and steel parts, window weights, plow points, grates, burnt iron, etc.

G. Agricultural Scrap.

Cast iron parts of agricultural machinery, including plow points. Must be free from steel, malleable and full chilled iron.

H. Cast Iron Car Wheels.

Cast iron car and locomotive wheels. A. R. A. classification No. 54 will be acceptable.

I. Brake Shoes.

Driving and car brake shoes of all types, except composition filled shoes. A. R. A. classification No. 19 will be acceptable.

J. No. 1 Radiator Scrap.

Broken radiator castings, cupola size, with all steel, malleable and other parts removed. Must be free from excessive scale, rust and corrosion.

K. No. 2 Radiator Scrap.

Unbroken radiator castings. Must be free from excessive scale, rust and corrosion.

L. No. 1 Malleable Scrap.

Malleable parts of automobiles, railroad cars and miscellaneous malleable castings. Must have undergone the annealing process. Must be free from steel and cast iron parts, and malleable pipe fittings. A. R. A. classification No. 30 will be acceptable.

M. No. 2 Malleable Scrap.

Malleable parts of agricultural implements, and other miscellaneous malleable castings. Must have undergone the annealing process. Must be free from steel and cast iron parts.

Scrap For Use In Bessemer Converters

A. Mild Steel Converter Scrap.

Mild open-hearth steel scrap, such as structural shapes, rolling mill crop ends, forgings and forge crop ends. No piece to weigh over 150 lb. or less than 10 lb., not under ⅜ in. section, and must not exceed 24 in. in any one dimension. Must be free from excessive rust or corrosion.

B. High-Carbon Steel Converter Scrap.

High-carbon or hard steel scrap, such as steel rails and material of similar analysis. No piece to weigh over 150 lb. or less than 10 lb. and must not exceed 24 in. in any one dimension. Must be free from excessive rust or corrosion.

C. Steel Spring Scrap.

Coil and leaf springs, made from stock ⅜ in. in thickness or heavier. Elliptical springs must be cut apart, and must not exceed 24 in. in length. Must be free from plates, and from excessive rust or corrosion.

Miscellaneous Scrap Specifications

A. Crucible Steel Scrap.

Boiler steel punchings, under 0.04 per cent in phosphorus or sulphur. This is a basic classification for crucible steel scrap. In the event any other material is specified, no piece shall exceed 5 in. in width or 8 in. in length. In the event that small soft steel castings are specified as crucible scrap, the weight shall not exceed 10 lb. per piece.

B. Chemical Borings.

Clean, fine, dry cast iron borings free from oil and grease. Shall contain no lumpy or rusty stock, and be free from other metals.

Proposed Specifications Covering Iron and Steel Scrap for the Iron Rolling Mills

A. Iron Axles.

Iron railroad car axles; A. R. A. sizes, free from locomotive axles and defective or imperfect forgings.

B. Steel Axles.

Steel railroad car axles; A. R. A. sizes, free from locomotive axles and defective or imperfect forgings.

C. Steel Locomotive Axles, all sizes.

D. Iron Rails.

Standard section tee rails, original weight 40 lb. per yd. or heavier, minimum length 4 ft.; free from frog, guard, switch and curved rails.

E. Steel Rails for Rerolling.

Standard section steel tee rails, 50 lb. per yd. and heavier, 5 ft. long and over. Free from bent and twisted rails, frog, switch and guard rails and rails with split heads and broken flanges.

F. Shafting.

Iron and soft steel, 1½ in. to 8 in. in diameter; 30 in. and longer in straight bars.

G. Arch Bars.

Iron railroad arch bars and transom bars.

H. Iron Angle or Splice Bars.

Wrought iron—50 per cent to be whole bars.

I. No. 1 Railroad Wrought.

Heavy wrought iron and soft steel scrap from railroad shops and cars, 6 in. and longer, including iron links and pins; flats ¼ in. thick and over; rounds and squares, ⅝ in. thick and over; free from any riveted material.

J. No. 2 Railroad Wrought and Track Scrap.

Heavy wrought iron and soft steel scrap from railroad shops and cars, under 6 in. long, but including tee plates, track bolts, spikes and nuts. All to be free from steel shapes and plates.

K. No. 1 Yard Wrought.

Iron and soft steel scrap suitable for piling purposes without further preparation. Material to be ⅜ in. or heavier, 4 in. or narrower and not over 26 in. in length or shorter than 8 in. May include wagon tire if cut into 6 in. lengths, or shorter. Must be straight and flat; also free from plate, sheet, hoop and washer scrap punchings and similar material.

L. No. 2 Yard Wrought.

Wrought and soft steel bar, shape and plate ends, punchings and shearings, under 8 in., free from curly clippings and hard steel, all suitable for fagoting.

M. No. 1 Busheling.

Clean wrought iron and soft steel pipes and flues, tank and bands No. 12 and heavier, boiler plate punchings and clippings; nothing to be over 8 in. long or wide, free from galvanized or tinned stock.

N. No. 2 Busheling.

Cut hoops, sheet, cotton ties and similar light material; nothing to be over 8 in. long or wide; free from dirt, galvanized or tinned material, or other similar inferior scrap.

O. Pipes and Flues.

Wrought iron and soft steel pipe 1 in. in diameter and over, and 24 in. in length and over. Must be free from dirt, corrosion, or lime and from riveted seams.

P. No. 1 Mill.

Wrought iron and soft steel bars not less than ⅜ in. round or square, and flats no thinner than No. 12 wire gage, including heavy railroad sheet; tanks in separate sheets and rings, boiler sheet and rings, clean pipes and flues, heavy punchings and clippings and strictly soft steel agricultural implement shapes.

Q. No. 2 Mill.

Wrought iron and soft steel hoops and sheets, railroad sheets, cotton tie clippings and ties; cut smoke stacks, band iron and steel; scoops and shovels (free from wood); skeleton sheet scrap and iron too light for No. 1 mill. Must be free of wire rope, cushion and other similar springs, lime encrusted pipe and flues from boilers, galvanized, tinned or badly rusted material.

R. Turnings.

Wrought and soft steel, clean and free from other metals, dirt, lumps and badly tangled material.

S. Cast Iron Borings.

Clean and free from other metals, dirt and lumps.

T. No. 1 Cast Iron.

To be all clean cast iron machinery scrap, nothing under 5 lb., nor over 75 lb. in. weight; not over 24 in. long, or 12 in. wide. To contain no brake shoes, cast iron soil or drain pipe, cast iron columns, stove scrap or burnt iron of any description and to be free from steel parts.

U. No. 1 Boiler Plate.

Boiler sheets and rings ⅛ in. to ¾ in. thick, cut apart and free from rivets; no single piece to weigh over 500 lb.

V. No. 1 Forge Fire Stock.

New bundled black sheets or skeleton steel bundled cotton ties or wool ties, free from other metals or coated stocks, in bundles not over 18 in. in diameter and 30 in. long. Bundles compactly made and securely wired.

NOTE: Material on all of above grades, unless otherwise specified, must be free from high-carbon or alloy steel. Soft steel herein mentioned is considered to mean 0.20 per cent carbon and under.

MANGANESE IN 1925

Domestic Ore Shipments Increased—Ore Imports Expanded—Manganiferous Ores

Domestic shipments of manganese ore, according to preliminary figures compiled by the United States Bureau of Mines for 1925, containing 35 per cent and more of metallic manganese, totaled approximately 97,500 gross tons, valued at $1,853,000. This is an increase of 73 per cent over 1924; the tonnage produced in 1924 was 56,515, valued at $1,307,477. The difference in value of the two years as given is due to the fact that the ratio of the production of chemical ore to that of metallurgical ore decreased, while the production of chemical ore remained relatively constant for the two years.

In 1925, the Butte, Mont., district shipped 47,856 tons. This ore was rhodochrosite and was utilized in the manufacture of ferromanganese. Very large increases were made in shipments of high grade manganese ore from Montana and Virginia with smaller increases from Washington, New Mexico and Georgia. The most notable decrease for the year was in Colorado. After May, 1925, only one company was active in the Leadville, Colo., district and its production was manganese ore and manganiferous ores.

Figures furnished by the Bureau of Foreign and Domestic Commerce show that during the first 11 months of 1925, the metallic manganese content of the manganese ore imported amounted to 242,009 tons. The imports from Cuba for 11 months were 8182 tons of manganese ore. For the first 11 months the manganese content of the imports of ferromanganese and other alloys, exclusive of spiegeleisen, was given as 68,164 tons. Assuming an average of manganese content of 48 per cent for all ores imported, the gross weight of ore imported, including that of Cuba, during this period was approximately 512,000 tons. If the imports in December were equivalent to those in November then the total would be about 582,000 tons as compared with 505,000 tons in 1924, calculated on the same tenor of ore. The 1924 imports of ferromanganese (manganese content) were 45,270 tons.

The metallic manganese in the imports of ore from the Caucasus (Russia) amounted to 89,994 tons for the first 11 months of 1925, over double the quantity imported for the entire year of 1924, or 41,097 tons of metallic manganese. This difference is partially made up by the fact that no imports for 1925 can be credited to Turkey, while in 1924, 52,557 tons were reported from that country which should have been credited to the Caucasus for 1924. The imports of ore from Brazil for the first 11 months of 1925 contained 87,229 tons of manganese as compared with 54,938 tons for the entire year of 1924; imports from British India show a decided decrease for 1925, figures being 22,873 tons imported for the first 11 months of 1925 as compared with 54,566 tons for the entire year of 1924; imports from Gold Coast of West Africa (British) for the first 11 months of 1925 were 31,750 tons as compared with 23,034 tons in 1924.

The shipments of domestic ores, carrying from 10 to 35 per cent manganese, decreased in 1925, from 286,470 tons, valued at $929,390, to approximately 265,000 tons, valued at $827,000. The decrease is due to the large falling off in production in Colorado and Minnesota, whereas in Michigan and New Mexico decided increases were made.

The domestic shipments of ores containing 5 to 10 per cent manganese show an increase over 1924 production of nearly 100 per cent. The consumption of manganiferous iron ores for use in blast furnace practice is responsible for this increase. The shipments of this class of ore amounted to 1,156,000 tons in 1925, valued at $2,815,000 compared with 587,026 tons in 1924, valued at $1,713,943. The shipments from Minnesota increased from 361,527 tons in 1924, to 742,000 tons in 1925, and those from Wisconsin from 175,316 tons to 404,213 tons.

Imports of Spiegeleisen in 1925

According to data furnished by the iron and steel division of the Bureau of Foreign and Domestic Commerce, imports of spiegeleisen into the United States during 1925 were as follows in gross tons:

		Tons	Value
Jan.	United Kingdom	550	$17,697
Feb.	.....	...	.....
March	United Kingdom	75	7,210
April	United Kingdom	75	2,394
May	United Kingdom	100	3,600
June	United Kingdom	100	3,600
July	.....	...	.....
Aug.	.....	...	.....
Sept.	.....	...	.....
Oct.	.....	...	.....
Nov.	United Kingdom	190	5,340
Dec.	.....	...	.....
	Total	1,090	$39,841

The value of the British spiegeleisen was therefore about $36.55 per ton. This is higher than the American product but its importation is possible in certain cases where location and freight are a disadvantage to the American seller.

The Richmond Iron Works, Richmond Furnace, Mass., has sold 200 acres of land on which its furnace stands, to private parties, who will not operate the furnace. Thus the last of New England's charcoal pig iron furnaces passes from existence, the Salisbury Iron Corporation, Lime Rock, Conn., having recently sold out to New York interests. The Richmond furnace was started in 1829, had an annual capacity of 5000 tons and, until the ending of the war, operated with comparatively few interruptions. Since the war the high cost of charcoal forced the company to suspend operations. For something like 40 years the Pennsylvania Railroad took the output for the manufacture of car wheels.

A small pamphlet, entitled "Silicious Ores," has been prepared by Clement K. Quinn & Co., Duluth, Minn. It gives certain facts regarding two grades of this class of ore which are available and which have been carefully prepared for blast furnace use. The two grades referred to are the "Kruse" and the "Empire" and analyses of each one are given in the leaflet.

Hardening and Tempering Steels

(*Continued from page* 403)

be gone over frequently to see that they are in perfect condition.

Any scale should be removed from test bars which have been heat treated.

In order to avoid possible errors which might be caused by defective insulation of the heating coils, it is advisable to cut off the heating current when making a reading. The special switch *I* is suitable for the purpose.

The reading must be taken only after thermal equilibrium has been reached. It is impossible to determine beforehand how long this will take, as it depends, among other things, on the inertia of the millivoltmeter and on the dimensions and conductivity of the test bar. Equilibrium is reached when the needle is steady.

Maximum accuracy in the measurements is obtained by proceeding as follows:

After the test bar has been secured in the clamp and the lower end immersed in the mercury the latter is heated to a few degrees above the temperature θ at which the thermoelectric e.m.f. is to be determined. The heating current is then cut off and the voltmeter circuit is closed. Simultaneous temperature and voltmeter readings are taken at suitable intervals until the temperature has fallen a few degrees below θ, and by plotting the temperature-thermoelectric e.m.f. curve the exact value for the thermoelectric e.m.f. at the temperature θ is easily obtained.

Experimental Conditions

All these precautions were taken, and each determination was repeated several times, the mean value being taken as correct, so that the results can safely be considered as being accurate to within ∓ 0.01 millivolt. All the tests were carried out at an atmospheric temperature of 18 deg. C. and the mercury bath was always kept at 120 deg. C. Four different steels were tested:

An extra-mild steel,
A semi-mild steel,
A semi-hard steel,
A Jacob Holtzer "double bell" steel.

The test bars were about 10 to 12 mm. in diameter by 250 mm. long, and the thermoelectric e. m. f. was determined after each of the following treatments:

Annealing at 950 deg. C. (15 min.)
Quenching in water (at 20 deg. C.) after heating to 50 deg. above the transformation point.
Quenching in oil under the same conditions.
Quenching in water and drawing at 100, 175 (in oil), 240, 400, 800 deg. C.

Annealing and tempering above 200 deg. were carried out in an electric resistance furnace. The relation between the mechanical properties and the thermoelectric e. m. f. was established by determining the Brinell hardness after each heat treatment (10 mm. ball, 3000 kg.). The other mechanical properties are easily deduced from the hardness, as their relation to this property can be considered as well established for all ordinary types of steel, both annealed, hardened and tempered at various temperatures.

Results of the Tests

The experimental results are given graphically (Fig. 2), the variations in hardness and in thermoelectric e. m. f. being given as functions of the temperature for each steel. The curves are for hardening in water. The points relative to oil quenching are also indicated with an asterisk (*).

The hardness curves are of the usual shape. The change in variation of the hardness when tempered below 300 deg. is clearly marked for the hardening steels, and is still appreciable for the semi-mild and extra-mild steels. This anomaly is attributed to the presence of austenite, and is not observed with steels which have been hardened under such conditions that only martensite and troostite are formed (Maurer, *Revue de Métallurgie*, Vol. 5, 1908, page 722.)

The thermoelectric e. m. f. curves each consist of two straight lines which meet at a sharp angle. The portion of the curve relative to tempering above 250 to 300 deg. is horizontal, while the portion corresponding to lower temperatures is more or less inclined. The point of intersection of the two parts of the curve corresponds approximately to the change in the hardness curves, and it is therefore quite natural to attribute the two phenomena to a common cause.

It will be observed, on the other hand, that the points marked with an asterisk, which correspond to quenching in oil without tempering, are on the prolongation of the horizontal line portions of the respective curves. It is therefore to be inferred that the thermoelectric e. m f. is modified by hardening only when the polyhedral constituent persists at the ordinary temperature. This is confirmed, on the one hand by Galibourg's experiments, and on the other hand by a series of tests which we carried out on several ordinary and special steels, the results of which are condensed in the table below.

Most of the values given for the electrical measurements are the mean of values obtained for two or three different test bars. The determination of the thermoelectric e. m. f. would thus appear to furnish a convenient and fairly sensitive method for the detection, and even for the approximate quantitative determination, of a constituent which generally escapes detection by micrographic examination when it is present in small proportion in admixture with martensite or troostite.

If *e*, in Fig. 3, is the thermoelectric e. m. f. of the

Nature and Composition	Heat Treatment	Thermoelec. e.m.f. mv. at 120 deg.	Tensile Strength kg. per sq. mm.
Ordinary mild steel	Annealed at 900 deg.	28	41
	Hardened without tempering	30—	60
Ordinary semi-hard steel	Annealed at 875 deg.	73	55
	Quenched at 875 deg. in oil	72—	67
	Quenched at 875 deg. in water at 28 deg., tempered at 600 deg.	72—	65
Ordinary semi-hard steel	Annealed	68—	61
	Hardened without tempering	68	69
	Hardened and tempered	66+	68
Ordinary hard steel	Annealed at 875 deg.	93+	62
	Quenched at 875 deg. in oil	93+	87
	Quenched at 850 deg. in water at 40 deg., tempered at 600 deg.	92	83
Semi-hard cast steel	Annealed casting	69	47
	Quenched at 875 deg. in water at 28 deg., tempered at 600 deg.	67+	60
Mild cast steel	Annealed casting	75	39
	Quenched at 875 deg. in water at 28 deg., tempered at 600 deg.	78	49
Case-hardened with 2% Ni	Annealed	110—	43
	Hardened without tempering	112—	45
	Hardened and tempered	113+	45
Silico-manganous steel	Annealed	184—	82
	Hardened without tempering	182+	92
	Hardened and tempered	183	91
0.6% Cr; 2.5% Ni	Double-annealing 850 to 650 deg.	86+	65
	Quenched in oil at 850 deg.	88	155
	Quenched in oil at 850 deg., tempered at 600 deg.	86	93
Chrome steel	Annealed at 900 deg.	52+	114
	Quenched at 900 deg. in water at 28 deg.	56+	115
	Quenched at 900 deg. in water at 28 deg., tempered at 600 deg.	58—	114
Nickel-chromium steel	Annealed	105	63
	Hardened without tempering	100—	90
	Hardened and tempered	96	90

annealed steel, $e + \triangle e_\theta$ that of the steel containing a_θ per cent of dissolved carbon after hardening and tempering at a temperature of Θ, it can be assumed that:

$$\frac{\triangle e_\theta}{e} = K a_\theta$$

The results show that:

$$\frac{\triangle e_\theta}{\triangle e_0} = \frac{T - \Theta}{T}$$

Hence:

$$\frac{a_\theta}{a_0} = \frac{T - \Theta}{T}$$

The variation of $\triangle e$ as a linear function of Θ brings out the nature of the progressive transformation of austenite with increase in tempering temperature in a much more striking manner than the simultaneous change in the variation of the hardness or of the tensile strength. Moreover, considerable errors may occur in the determination of the mechanical properties of hard and brittle steels, such as the deformation of the ball in the Brinell test, and accidental bending of the test piece in the jaws of the tensile testing machine. On the contrary, the thermoelectric test, as devised by Galibourg, is much easier to carry out; and it gives a much more reliable and accurate control of the effects of heat treatment.

It hardly seems necessary to dwell on its advantages, from a practical standpoint, over more sensitive or more accurate physical methods (magnetism, electrical resistance, etc.), which are more difficult to carry out and require the preparation of special test bars.

Finally, it should be noted that quenching self-hardening steels appreciably decreases the thermo-electric e. m. f. For instance, the authors have found:

1 With a steel containing 1.5 per cent of chromium and 4 per cent of nickel
   a 1.22 mv. after double annealing at 850 to 650 deg.;
   b 0.96 mv. after air hardening without tempering.
2 With a silico-manganous steel (carbon 0.13%, silicon, 0.61%, manganese 2.68%)
   a 0.79 mv. after air hardening at 900 deg. without tempering;
   b 0.89 mv. after air hardening at 900 deg. and tempering at 600 deg.

The authors have not made a systematic investigation of this phenomenon; but it seems that it might be of considerable use, especially in the study and control of tool steel hardening.

LEAD AND ZINC IN 1925

Increase of 10 Per Cent in Smelter Output of Lead—Zinc Output Gained 9 Per Cent

The output of primary domestic desilverized lead was about 345,000 net tons; of soft lead about 255,000 tons, and of desilverized soft lead about 51,000 tons, making a total output from domestic ores of about 651,000 tons of refined lead, according to the Bureau of Mines. Corresponding figures in 1924 were 299,343 tons of desilverized lead, 203,615 tons of soft lead, and 63,449 tons of desilverized soft lead, making a total of 566,407 tons. The output of lead smelted and refined from foreign ore and bullion was about 112,000 tons, as compared with 124,086 tons in 1924. The total lead smelted or refined in the United States in 1925 was thus about 763,000 tons, as compared with a total of 690,493 tons in 1924, a gain of about 10 per cent. The output of antimonial lead in 1925 was about 17,000 tons, as compared with 20,787 tons in 1924.

The imports of refined pig lead in the first 11 months of 1925 were 5699 tons. Nearly 90 per cent of this lead came from Mexico. The lead of foreign origin exported in 11 months amounted to 93,292 tons, as compared with 76,758 tons in 1924. Lead of domestic origin exported in the same period amounted to 3853 tons, as compared with 5332 tons in 1924. From a total supply of about 774,000 tons of refined lead (exclusive of stocks) there was withdrawn for export or remained in warehouse about 109,000 tons, leaving 665,000 tons available for consumption in the United States, as compared with 672,947 tons in 1924.

Zinc Mining and Smelting

The recoverable zinc contained in ore mined in 1925 was about 712,000 tons, as compared with 636,617 tons in 1924. Notable increases were made in the zinc output of Utah and Idaho.

The price at Joplin of 60 per cent zinc concentrates was $57.50 a ton at the opening of the year. The price dropped to $47.50 in April and May, but rose gradually in the following months and reached $59 in November. The quotation at the end of the year was $56 a ton.

The output of primary metallic zinc from domestic ores in 1925 was about 551,000 tons and that from foreign ores was about 18,000 tons, a total of 569,000 tons, as compared with 515,831 tons from domestic ores and 1508 tons from foreign ores, a total of 517,339 tons in 1924. In addition to the output of primary zinc there was an output of about 39,000 tons of redistilled secondary zinc, as compared with 35,486 tons in 1924, making a total supply of distilled and electrolytic zinc in 1925 of about 608,000 tons, composed of 157,000 tons of high grade and intermediate, 83,000 tons of select and brass special, and 368,000 tons of prime western zinc.

The imports of foreign slab zinc for 11 months amounted to only 21 tons. The exports of slab zinc made from domestic and foreign ores amounted to 77,735 tons, including 3765 tons of rolled zinc. The stock of zinc reported at smelters at the end of November was about 8000 tons. No slab zinc was reported in warehouse. The apparent consumption of primary zinc in 1925 was about 504,000 tons, as compared with 448,257 tons in 1924.

Out of a total of 121,000 retorts at plants that had operated during all or a part of the year, about 91,000 were reported in operation at the end of November. The number expected to be in operation Dec. 31 was about 97,000.

Coal Production of the World

World production of coal (including lignite) in 1924 is estimated by the United States Bureau of Mines at 1,354,300,000 metric tons, a reduction of a fraction of 1 per cent below 1923 and a still smaller fraction below 1917. With those two exceptions, the figure is the highest yet recorded. Production of the United States in 1924 is given as 38.3 per cent of the total, the lowest ratio, except for 1922, since 1911. It may be compared with an average of about 42 per cent during the preceding ten years. The table gives the output of the leading producers in the three most recent years, in millions of metric tons:

World Production of Coal and Lignite

Millions of Metric Tons

	1924	1923	1922
United States	518.6	596.8	432.7
Canada	12.4	15.4	13.8
Germany	243.2	181.1	267.2
Great Britain	271.4	280.4	253.6
France	45.0	38.6	31.9
Belgium	23.4	22.9	21.2
Czechoslovakia	35.6	28.6	29.6
Poland	32.3	36.3	24.2
Russia	13.9	14.5	7.8
Hungary	6.4	7.7	7.7
Austria	2.9	2.8	3.3
Netherlands	6.4	5.6	4.9
Spain	6.6	6.4	4.8
Saar	14.0	9.2	11.2
China	21.0	20.0	22.7
British India	21.6	20.0	19.3
Japan	31.8	30.6	29.3
South Africa	11.3	10.8	8.8
New South Wales	11.8	10.6	10.3
The Whole World	1354.3	1359.9	1225.5

Trade Changes

The Edward Cowan Sheet Metal Works, 411 West Woodbridge Street, Detroit, has changed its name to the Cowan Sheet Metal Works, Inc. The business is now being operated as a corporation instead of a partnership. Edward Cowan, Jr., is secretary. The company's business consists of general sheet metal contracting, specializing in ventilating and blowpipe work.

The Griscom-Russell Co. has removed its general offices from 90 West Street to the new Murray Hill Building at Fortieth Street, 285 Madison Avenue, New York. The company makes heaters, evaporators, coolers, separators, filters and other specialties.

The Union Gear & Machine Co., 27 Purchase Street, Boston, has leased the second and third floors at that address.

The Adams & Osgood Steel Co., Inc., 287 Atlantic Avenue, Boston, has leased the first floor and basement at 19 to 27 Purchase Street.

Andersen, Meyer & Co., exporters to China, have removed from 80 Wall Street to 79 Madison Avenue, New York. The offices of the importing departments of the company, which have been at 598 Broadway, have also been removed to the new address.

The Celite Products Co., Los Angeles, has moved its offices from the Van Nuys Building to 1320 South Hope Street.

The Wagner Electric Corporation has moved its Omaha office to 2566 Leavenworth Street, effective Jan. 25.

The Strom division of the Marlin-Rockwell Corporation, formerly the Strom Ball Bearing Mfg. Co., has moved its Philadelphia office to 1211 Franklin Trust Building, Fifteenth and Chestnut Streets. A. W. Wiese will continue as manager in that territory.

The McLeod & Henry Co., Troy, N. Y., has purchased all the molds, patterns and finished stock of the Peekskill Fire Brick Works, Inc. The Peekskill company has retired from the fire brick and stove lining business, effective Feb. 1.

The Braeburn Alloy Steel Corporation has opened general sales offices in the First National Bank Building, Pittsburgh, under the direction of H. Oliver Williams, vice-president in charge of sales. A Pittsburgh district sales office has been opened at the same address, under the direction of L. M. Brown, district manager, assisted by D. H. Horne and W. Z. Burns. A Cleveland district sales office, at 310 Union Mortgage Building, Ninth and Euclid Streets, has been opened also, in charge of A. G. Cappel, resident manager, assisted by Emmet Leckner.

The Reading Chain & Block Corporation, Reading, Pa., manufacturer of chain hoists, electric hoists and other material-handling equipment, has opened an office at 327 First Avenue, Pittsburgh, in charge of Lloyd W. Lutz, an experienced engineer who has been with the Reading company for a number of years.

The Midland Coke & Iron Corporation, 208 South LaSalle Street, Chicago, has changed its name to the St. Louis Coke & Iron Corporation, the address of executive offices remaining as before.

The name of the Hilliard Clutch & Machinery Co., Elmira, N. Y., has been changed to Hilliard Corporation.

The Newton Steel Co., Youngstown, Ohio, moved its Cleveland office Feb. 1 from the Hanna Building to 1913 Union Trust Building. Donald McVay is manager of both the Cleveland and the Buffalo offices.

The General Phonograph Mfg. Co., Elyria, Ohio, has changed its name to the General Industries Co. The entire personnel of the organization will remain the same. A. G. Bean is president.

The West Leechburg Steel Co., Farmers Bank Building, Pittsburgh, has moved its Cincinnati office to Room 921, Union Central Building, instead of Room 906.

The Superior Foundry Co., Cleveland, has sold its piano plate department, part of it going to the Wickham Piano Plate Co., Springfield, Ohio, and the remainder to the Paragon Foundry Co., Oregon, Ill. The Superior company will extend its facilities for jobbing work in gray iron and semi-finished steel castings.

The Riley-Fredericks Co., 209 Grand Avenue, Milwaukee, sales engineer for a number of important power plant equipment and specialty manufacturers, has changed its name to the Riley Power Equipment Co. The principal ownership is now in the hands of Francis Riley, president and general manager.

The manufacturing business conducted by Frank Diehl, Wabash, Ind., manufacturer of glue room machinery, has been incorporated as Frank Diehl, Inc., with capital stock of $10,000.

The Atlas Metal Works, Inc., succeeded the Atlas Sheet Metal Works Jan. 1. The company builds dryers, dehydrators, graders, storage and pneumatic tanks and general steel and structural work.

The Charles A. Strelinger Co., Detroit, has been appointed exclusive agent in the lower peninsula of Michigan for the standard metal-working machinery of the Defiance Machine Works, Defiance, Ohio, consisting of horizontal boring mills, heavy service drills, rail-drilling machines, multiple adjustable straight line drilling machines and valve grinding machines.

A Waynesboro, Pa., syndicate has purchased the old Geiser Works from the Emerson-Brantingham Co. The charter of the old company has been revived as the Geiser Mfg. Co., the charter having been granted originally in the 60's. The products manufactured are steam traction engines, portable engines, saw mills, threshing machines, hay presses, etc. A number of new developments are in contemplation.

The Atlas carryall overhead conveying system heretofore manufactured by Dreis & Krump Mfg. Co., Seventy-fourth Street and Loomis Boulevard, Chicago, has been sold to the Chicago Electric Co., 740 West Van Buren Street, Chicago. This line has been on the market for the past five years, and installations of the material have been made in many large plants throughout the country. The Chicago Electric Co. previously handled a similar line. In addition to the hand-operated system, now on the market, the company will offer also an electrically operated track.

The Plainville Mfg. Co., Plainville, Conn., trunk trimmings and lock washers, has been moved to the Bristol, Conn., plant of the Root Mfg. Co.

The plant of the Cyclops Steel Co., Inc., Titusville, Pa., which for some time past has been operated by C. S. Newhall and D. J. McLaughlin, receivers, will now be operated by Charles T. Evans, who has leased the plant and purchased the inventory from the receivers, under an order from the United States District Court. Mr. Evans has been connected with the company since 1917, and has been responsible for the quality of the tool steel made during that period. For more than a year he has been in complete charge of operations. The personnel of the mill and sales organizations has been kept intact by the receivers. The leasing of the plant is a preliminary step toward a permanently organized company with abundant working capital, as soon as a clear title can be given by the receivers.

The corporate name of Orton & Steinbrenner Co., 608 South Dearborn Street, Chicago, with factory at Huntington, Ind., has been changed to Orton Crane & Shovel Co., of the same address. No change in ownership, management or officials is involved. The company's principal activity is the manufacture and sale of locomotive cranes, crawling tread cranes, gas, electric and steam shovels, draglines and grab buckets.

The Crescent Tool Co., Jamestown, N. Y., has purchased the capital stock of the Smith & Hemenway Co., Inc. Ill health on the part of Landon P. Smith, president Smith & Hemenway Co., is largely responsible for his selling. He retires from the company and only executive offices will be moved to Jamestown. The glaziers' tool business of Smith & Hemenway Co. has been transferred to Landon P. Smith, Inc., 100 Coit Street, Irvington, N. J., but the remainder of the "Red Devil" tool line will be manufactured and sold by Smith & Hemenway, Inc., at 130 Coit Street, Irvington, N. J., as heretofore.

The Ex-Cell-O Tool & Mfg. Co. has appointed Williams, Cole & Wolff, Milwaukee, as representatives for Wisconsin. The Ex-Cell-O company has appointed the Hausman-Harwick Machine Tool Co., Birmingham, Ala., as sales representative for Alabama.

The Wade-American Tool Co., Waltham, Mass., manufacturer of precision lathes, tool gages, dies and fixtures, has changed its name to the Wade Tool Co.

The Buffalo Machine & Iron Corporation, 268 Perry Street, Buffalo, manufacturer of hydraulic presses, air and gas compressors, has changed its name to the Lake Erie Engineering Corporation.

The Indiana Coke & Gas Co., Terre Haute, Ind., announces that its sales agency agreement with Rogers Brown & Crocker Brothers, 332 South Michigan Avenue, Chicago, expired Jan. 31. All sales of foundry and industrial coke are now handled by the manufacturer through its own sales organization, with headquarters at the home office in Terre Haute, Ind., and a branch sales office at 1200 Old Colony Building, Chicago, in charge of Lewis D. McClaren.

On Feb. 1 the Columbia Steel Corporation, San Francisco, moved the general offices to sixth floor, Matson Building, 215 Market Street, San Francisco.

The Continental Steel Products Co., a sheet jobbing concern at Youngstown, Ohio, is preparing to move its general offices from the Dollar Bank Building to a new

warehouse being built at Wickliffe, along the Youngstown and Austintown branch of the Erie railroad.

Kearney & Trecker Corporation has opened a new branch office in Indianapolis, with headquarters at room 614, Traction Building. Robert W. Ott, formerly connected with the Chicago office, will be in charge of the new Indianapolis territory.

Joseph T. Ryerson & Son, Inc., New York, has removed the executive and export sales offices at 30 Church Street from the twentieth floor to offices on the nineteenth floor of the same building formerly occupied by Rogers, Brown & Co.

The Elyria Iron & Steel Co. has added more than 40 per cent to the floor space of its welded tubing manufacturing and fabricating department at Cleveland, during the past year. Other additions include a boiler plant and storage building and a four-story office building now under construction at 232 East 131st Street, Cleveland. The cold rolled department at Elyria has been greatly increased also. George F. White is secretary and treasurer.

J. E. Loshbough, formerly president and half owner of the Loshbough-Jordan Tool & Machine Co., has sold his interest in that company and has recently organized a new company known as the Loshbough-Beck Press Co., Elkhart, Ind., to manufacture a complete line of high-grade open-back inclinable presses. The officers of this new company are: J. E. Loshbough, president and general manager; L. E. Loshbough, vice-president, and H. M. Beck, secretary and treasurer. The line will be marketed through dealers.

Toledo Scale Co. Changes

Controlling interest in the Toledo Scale Co., manufacturer of automatic scales for retail stores and factories, has been acquired by Hubert D. Bennett, Toledo, who has been elected president and has assumed active direction. O. C. Reeves, general factory superintendent of the company since 1905, was elected first vice-president and W. C. Gookin, the general sales manager, was elected second vice-president. Mr. Gookin joined the Toledo organization a year and a half ago. The company was organized in 1901 by the late Henry Theobald to manufacture a computing scale operated by means of an automatic pendulum counterbalance, rather than by springs. Employing this same principle the company has expanded to the point of manufacturing some 30 models of computing and non-computing scales for retail stores, a large line of automatic weighing and counting scales for industrial use, ranging in capacity from ½ lb. to 30 tons, and scales for such special purposes as determining the uniformity of weight of a continuous sheet product in the process of manufacture, determing the weight per yard of a bolt of cloth, indicating on a dial the horsepower of motors, and for balancing reciprocating units.

NEW TRADE PUBLICATIONS

Centrifugal Air Compressors.—General Electric Co. Schenectady, N. Y. Four-page folder GEA-233 devoted to single-stage air compressors. Considerable tabular matter, together with characteristic curves, will aid in selection of the size needed.

Speed Reducers.—Foote Brothers Gear & Machine Co., Chicago. Folder devoted to continuous tooth, herringbone, speed reducing gear, featuring elimination of backlash, minimum vibration, and great tooth strength.

Multiple Spray Fuel Oil Burner.—Liquid Fuel Engineering Co., 6565 Russell Street, Detroit. Catalog of 12 pages describing a burner for industrial use in connection with fuel oil. This is built in three types for short, medium and long flames and has controls for size of flame.

Water Level Indicator.—W. B. Connor Co., 110 West Forty-second Street, New York. Folder describing the Ace water level indicator for showing the level of water in boilers, at a location convenient for reading, whether on the floor of the boiler room or in the office of the chief engineer.

Charcoal Iron Boiler Tubes.—Bethlehem Steel Corporation, Bethlehem, Pa. A 70-page illustrated booklet on Bethlehem charcoal iron boiler tubes, which this company makes in knobbling furnaces, or open forge fires, which the company claims is the only process by which charcoal iron can be produced commercially without impurities. The booklet contains a brief history of iron making, a description of the process employed at the Coatesville, Pa., plant of the Bethlehem Steel Corporation, and also gives a great deal of technical information, including the standard specifications of the American Society for Testing Materials, the American Society of Mechanical Engineers, the mechanical division of the American Railway Association, and the general rules and regulations prescribed by the Board of Supervising Inspectors of the United States Steamboat Inspection Service. List prices, theoretical weights, standard sizes and areas and tubes complete the information given.

Turret Lathes.—Foster Machine Co., Elkhart, Ind. Production data sheet, Case No. 9. Blue printed sheet and photograph, punched for binding, relating to reduction in cost of machining a sprocket blank. The machine used was the company's No. 7 alloy steel-head screw machine equipped with special turret and cross slide tools. The efficiency of the tooling, which permits of machining six blanks at one time, is one of the factors stressed in connection with the lowered cost.

Forging Equipment.—National Machinery Co., Tiffin, Ohio. Forging machine talk No. 53, one page, devoted to the upsetting and expanding of tubing in making one-piece drag links.

Buffing Wheels.—Divine Brothers Co., Utica, N. Y. Booklet of 25 pages describing various grades of full disk, sewed pieced and special buffs.

Calendar.—Alley & Page, Inc., 185 Devonshire Street, Boston. Calendar for 1926, size 2¼ x 4¼, mounted under an attractive colored print, 9 x 12 in. The print, named the "Pride of the Litter," shows a room in which men in red-coated hunting costumes are examining a fox hound puppy.

Pyrometers.—Taylor Instrument Co., Rochester, N. Y. Catalog, Part 4000, 56 pages 7½ x 10½ in., with comprehensive data on the company's base-metal, rare-metal and radiation pyrometers. A variety of indicating and recording instruments are described, as well as Thermopyres, molten metal pyrometers, automatic pyrometer controllers and selective switch devices. There are several pages of general information and tables, including maintenance, testing, methods of wiring and thermocouple installation methods.

Calendar.—Warren Webster & Co., Camden, N. J. Calendar for 1926, three months on one sheet. Large buildings in which Webster systems of steam heating have been installed are pictured at the top of each sheet.

Milling Machine Attachment.—Kearney & Trecker Corporation, Milwaukee. Bulletin No. 302 describing a new standard two-spindle vertical attachment. The spindles are mounted between the double overarms, giving a central location and eliminating offset, which is stressed as providing rigidity and permits of maximum work range for either direction of the table.

Bearing Metals.—Bearium Bearings, Inc., Buffalo; Topping Brothers, 159 Varick Street, New York, distributors. Leaflet describing the five grades of Bearium and their applications. Sound homogeneous castings are claimed, and free cutting, nonscoring and non-seizing characteristics are stressed. A table of physical properties is included.

"Carrying the Second Exposition of Forging Machinery to the Man Unable To Attend," is the title of a booklet of 20 pages, 10½ by 13½ in., issued by the National Machinery Co., Tiffin, Ohio. The exposition referred to is that held at the company's plant Aug. 24-27 and reported in THE IRON AGE of Sept. 3. Large illustrations show the new equipment exhibited, the type of work done on the machines being also illustrated and briefly discussed.

For use in calculating quantities connected with the expansion of steam, the De Laval Steam Turbine Co., Trenton, N. J., is distributing the Mollier entropy diagram printed on cardboard

"Two Men In a Pullman," is the title of a unique booklet written by Franklin B. Evans, and being issued by the G. M. Basford Co., 17 East Forty-second Street, New York. It recounts the conversation of two men, in the smoking compartment of a Pullman car, on the subject of what constitutes good advertising. There are 20 pages, 4½ x 7 in., and the booklet is bound in stiff cardboard.

Machinery Markets and News of the Works

FEWER ORDERS PLACED

Pending Business Large—Railroads Regarded as Important Prospects

Nash Motors Co., Santa Fe and United States Aluminum Co. Issue Small Lists

A FALLING off in the volume of orders is the report from the majority of machine tool centers, although in the Chicago district bookings have been well maintained and inquiries are being received at a substantial rate.

Pending business is large and with four sizable lists before the trade, the railroads loom important among the prospects. No prophecies are made, however, as to how soon the carriers will place the business. Several inquiries from automobile manufacturers are pending, and in some districts it is expected that much of this business will be placed during the remainder of this month and in March.

Most of the Cincinnati machine tool builders are now in position to make earlier deliveries than they were two months ago. Electrical manufacturers are showing more interest, and the textile industry appears as a prospect for sales within the next few months. Demand for used machinery has been active in some sections.

The Santa Fe Railroad is inquiring for two drilling machines and three frog and switch planers. A list including a 24-in. drill, a No. 3 miller, a cold saw and a tool-room lathe, for the United States Aluminum Co., Cleveland, is being figured. Another current inquiry is a small list issued by the Wood Newspaper Machinery Co., Plainfield, N. J.

The Nash Motors Co. has again entered the market for miscellaneous tools, and the National Lock Co., Rockford, Ill., is reported as contemplating the purchase of new equipment.

Plant extensions by four steel companies, for which large expenditures were recently authorized, undoubtedly will involve cranes and heavy shop equipment.

An outstanding sale of the week was that of 15 power presses to a Connecticut manufacturer.

New York

NEW YORK, Feb. 9.

INQUIRIES for machine tools and purchases cover a wide field of industrial users, particularly manufacturers of automobile parts and accessories. The railroads have not yet entered the market to any extent in this district. Among current inquiries is a small list of tools from the Wood Newspaper Machinery Co., Plainfield, N. J.

Among orders reported in the past week were: The Baltimore & Ohio Railroad, a 50-in. locomotive rod milling machine; Whitehead & Kales, River Rouge, Mich., a special rim rolling machine; Locke Pattern Works, Detroit, five profile machines; H. K. Porter, Everett, Mass., eight automatic milling machines; National Acme Co., Cleveland, a 13-in. geared head lathe; McNeil Boiler Co., Akron, Ohio, a 13-in. geared head lathe; Ford Motor Co., Detroit, two 16-in. geared head lathes; Prouty Line Products in California, a 16-in. lathe; J. H. Williams Co., Buffalo, a die sinker; International Motor Co., New Brunswick, N. J., a 6x60-in. thread milling machine; Wilson-Maeulin Co., New York, a 6x80-in. thread milling machine; Foxboro Co., Foxboro, Mass., a 11½x18-in. turret lathe; E. J. Bird Mfg. Co., Gardner, Mass., a multiple spindle drill press; National Lock Co., Rockford, Ill., an automatic milling machine.

Plans are being drawn by the Bronx Gas & Electric Co., 43 Westchester Square, Bronx, N. Y., for an addition to its power house on Zerega Avenue, Westchester, including improvements in present station, reported to cost $75,000. J. F. Hunter, care of the Consolidated Gas Co., Irving Place and Fifteenth Street, New York, is architect.

The recent purchaser of the buildings and machinery of the former Pardee Steel Corporation, Perth Amboy, N. J., is Ramapo, Inc., 30 Broad Street, New York, and not the Ramapo Ajax Corporation, 30 Church Street, as previously reported. The property was secured through the real estate department of the Perth Amboy Trust Co., and site will be cleared by the purchasing company in the near future.

The Chevrolet Motor Co., Broadway and Fifty-seventh Street, New York, has awarded a general contract to the White Construction Co., 95 Madison Avenue, for its proposed two-story service and repair building, 100 x 200 ft., at 544-50 West Fifty-sixth Street, to cost $185,000. Albert Kahn, Marquette Building, Detroit, is architect.

The Hygrade Corrugated Paper Products Co., Inc., Manley Avenue, Long Island City, is completing the erection of a new plant occupying a block at Hunters Point Avenue, Orton Street and Anable Avenue, three stories, with ground area of 50,000 sq. ft. The present works will be removed to the new location and additional machinery installed. The entire plant will represent an investment of $1,000,000.

Margon & Glaser, 29 West Fifty-seventh Street, New York, architects, have plans for a one-story automobile service, repair and garage building, 180 x 275 ft., on Home Street, Bronx, to cost $115,000 with equipment.

The machinery and stock at the plant of the Federal Armored Cable Co., 520-24 West Forty-first Street, New York, were partially destroyed recently by fire. An official estimate of damage has not been announced. The loss will be replaced.

Henry Holder, Jr., 242 Franklin Avenue, Brooklyn, architect, has plans for a four-story metal bed manufacturing plant on North Tenth Street, 31 x 100 ft., to cost $60,000, for H. Chase, Stamford, Conn., and associates.

The American Metal Co., 61 Broadway, New York, is reported to have preliminary plans for a new milling plant at its properties at Santa Fe., N. M., with power plant of 3000 kw. initial capacity, 12-mile cable tramway and other structures to cost in excess of $1,000,000.

The Board of Education, 108 Union Street, Schenectady, N. Y., is considering the installation of manual training equipment in its proposed three-story high school to cost $1,000,000. R. L. Bowen, 207 State Street, is city architect in charge.

Adolph Goldberg, 164 Montague Street, Brooklyn, architect, has filed plans for a one-story automobile service, repair and garage building, 125 x 320 ft., at 2313-49 East Nineteenth Street, Brooklyn, to cost $100,000 with equipment.

The American Sugar Refining Co., 117 Wall Street, New York, has started razing the obsolete sections of its refinery in Brooklyn, and will soon begin work on new buildings, including a series of raw sugar warehouses to provide for a capacity of 25,000 tons; six-story wash house, refinery extensions and power plant, to cost $2,000,000 with machinery.

The Board of Education, Rensselaer, N. Y., is considering the installation of manual training equipment in its proposed two-story high school to cost $300,000, for which plans are being drawn by Clarence H. Gardinier, 46 North Pearl Street, Albany, N. Y., architect.

The United States Testing Co., Inc., 340 Hudson Street, New York, has leased the factory and warehouse, and adjoining property at Park Avenue and Fifteenth Street, Hoboken, N. J., on site 201 x 257 ft. The new owner will remodel and improve, with the installation of equipment for chemical and

The Crane Market

THE volume of new inquiry for electric overhead and locomotive cranes is small, but a fair volume of business that is pending is expected to be placed in the next few weeks. In current purchases and inquiries, single crane inquiries for power plant installation are a feature.

In the Pittsburgh district there is prospect of heavy purchasing of cranes based on actual inquiries in the market at present. In addition to the large list of the Carnegie Steel Co. for the Homestead, Mingo and Edgar Thomson works, there are several for the Weirton Steel Co., three for the Pittsburgh Crucible Steel Co. and the Westinghouse Electric & Mfg. Co. is obtaining prices on four 3-ton, 37-ft. span cranes. The Standard Sanitary Mfg. Co., Pittsburgh, is expected to close shortly on a 5-ton, 28-ft. span crane for its New Brighton plant. The Columbia Steel Co., Butler, Pa., is reported preparing an inquiry for cranes.

Among recent purchases are:

Barstow Management Corporation, Reading, Pa., a 75-ton, 77-ft. span crane for a power plant installation in Florida from the Niles-Bement-Pond Co. and two ¼-ton electric hoists for the Washington Gas Co. and the Boonton Gas Light & Improvement Co., from Alfred Box & Co.

Joseph Mayone, Inc., Catskill, N. Y., three 5-ton, 45-ft. span electric cranes with four hooks for brick handling, from the Northern Engineering Works.

Chateaugay Ore & Iron Co., Standish, N. Y., a 20-ton locomotive crane from the Browning Crane Co.

Weston Iron Co., Washington, D. C., iron and steel scrap, a 20-ton used Industrial locomotive crane from Philip T. King, New York.

Jobson-Gifford Co., 441 Lexington Avenue, New York, two 10-ton, steam driven, crawl-tread locomotive cranes from the McMyler-Interstate Co.

Phoenix Utility Co., 71 Broadway, New York, a 60-ton electric overhead crane, reported purchased from the Whiting Corporation.

Acme Steel Goods Co., Riverdale, Ill., a 3-ton, post type, jib crane through Page & Ludwick, Chicago, from H. D. Conkey & Co.

Seidlitz Varnish Co., Kansas City, Mo., a 2-ton, 17-ft. span hand power crane with electric hoist from H. D. Conkey & Co.

Austin Co., Los Angeles, Cal., an 18-ton hand power crane from H. D. Conkey & Co.

Ophuls & Hill, New York, two ½-ton hand power cranes with electric hoists from H. D. Conkey & Co.

Chicago Bridge & Iron Co., Chicago, a 15-ton, 80-ft. span, 3-motor overhead crane from the Alliance Machine Co.

research laboratories, etc. It is also proposed to construct an addition on adjoining site. The entire project will cost close to $900,000. E. J. Stehli is president. The present New York works will be removed to the new location.

The Eastern New Jersey Power Co., Asbury Park, N. J., has acquired the municipal electric power house and system at Atlantic Highlands, N. J., and plans extensions.

The Borough Council, Matawan, N. J., is considering the complete electrification of the municipal water plant and will soon have estimates of cost made. Improvements and repairs will be made to pumping equipment.

The Board of Education, Montclair, N. J., is considering the installation of manual training equipment in a new two-story high school estimated to cost $500,000, for which foundations will soon be laid. Starrett & Van Vleck, 8 West Fortieth Street, New York, are architects.

Nathan Myers, 7 Nelson Place, Newark, architect, has completed plans for a two-story automobile service, repair and garage building, 100 x 350 ft., at Elizabeth Avenue and Branford Place, to cost $300,000.

The Central Baby Carriage Co., 325 Academy Street, Newark, N. J., manufacturer of children's vehicles, has plans for a one-story addition to its factory.

The Asher Machinery Corporation, 49 Mechanic Street, Newark, N. J., Arthur O. Asher, president, has purchased a one-story factory and adjoining property at 311-19 New Jersey Railroad Avenue, at Tichenor Street, 100 x 108 ft., and will use the site for a new storage, distributing and repair plant.

Fire, Jan. 29, destroyed a portion of the plant of the New England Button Co., Mechanic and Lawrence Streets, Newark, N. J., with loss estimated at $35,000, including equipment. It is planned to rebuild.

Sears, Roebuck & Co., Arthington Street and Homan Avenue, Chicago, have filed plans for initial buildings for their portable house factory and woodworking plant at Port Newark, Newark, N. J., consisting of one-story main mill to cost $55,000; four one-story factories to cost $70,000, and two one-story buildings adjoining. Other structures will be built later.

The Tidewater Oil Sales Corporation, 11 Broadway, New York, has awarded a general contract to G. H. Stadel, 424 Shippan Avenue, Stamford, Conn., for a one-story storage and distributing plant at South Avenue and Coates Street, East Paterson, N. J., to cost $50,000 with equipment. A one-story service, repair and garage building for company cars will also be built.

The Neptune Meter Co. has been incorporated with a capital of $250,000, under Delaware laws, to take over and expand the company of the same name with headquarters at 50 East Forty-second Street, New York, specializing in the manufacture of fluid meters, pumping equipment, etc.

The White Foundry Co., Inc., recently incorporated to take over the business of the Barnes Foundry Co., Inc., manufacturer of gray iron and semi-steel castings, 168 First Street and 183 Second Street, Jersey City, N. J., has not yet completed its organization but has no intention to add to its plant or equipment at present.

New England

BOSTON, Feb. 8.

A LOCAL dealer reports the sale of 15 new, more or less special, power presses to a Connecticut manufacturer, the largest individual sale reported in this market in several months. The city of New Bedford, Mass., has placed several small speed lathes with another local house and a list of less important equipment with a New Bedford dealer, all new tools, for its new school. Used machinery is somewhat less active, presumably because New England has not recovered from its worst snow storm since 1921, which demoralized transportation and the operation of automobiles, making it practically impossible for salesmen to get about their territories. A large amount of business is pending, however, and probably much of it will be closed this month. Recent inquiries for used equipment include motor-driven lathes and planers from New Jersey users.

Prices on universal boring machines have been advanced 10 per cent, and the Stark Tool Co., Waltham, Mass., has advanced quotations on bench milling machines and equipment.

The plant of the Charles R. Field Mfg. Co., Greenfield, Mass., baby carriage parts, was recently burned with a loss estimated at $50,000. It is going ahead with plans to rebuild, but details have not been worked out.

Contract has been awarded by the Firestone Apsley Rubber Co., Hudson, Mass., for the erection of a $500,000 addition for the manufacture of rubber footwear and similar products. Handling and other equipment is required. R. H. Bartlett, 520 Atlantic Avenue, Boston, engineer, has charge of the work.

M. W. Stedman, Tyringham, Mass., manufacturer of rakes, will build a one-story factory on the site of the one recently destroyed by fire.

Due to an unusual weight of snow, the roof of the one-story brick foundry of the North & Judd Mfg. Co., New Britain, Conn., collapsed Feb. 4.

The Holyoke Co., Inc., Holyoke, Mass., manufacturer of covered electrical wires and cables, has acquired the former plant of the Century Machine Co., at Springdale, Mass., idle for several years. The new owner will remodel the structures and remove its present business to the new location, providing additional equipment. It is expected to make the change early in the spring.

The Record Foundry & Machine Co., Livermore Falls, Me., manufacturer of paper mill machinery, contemplates rebuilding the portion of its plant destroyed by fire Jan. 23, with loss estimated at $35,000 including equipment.

The Riverside Boiler Works, 491 Main Street, Cambridge, Mass., has plans under way for extensions and improvements. Herbert S. Kimball, 177 State Street, Boston, is engineer.

The Springfield Foundry Co., Springfield, Mass., has filed plans for rebuilding the portion of its plant at 105 Liberty Street, recently damaged by fire.

The New England Power Co., Worcester, Mass., recently consolidated with affiliated interests in the New England Power Association, Worcester, is said to have preliminary plans under way for a hydroelectric power station near Bellows Falls, Vt., to cost more than $1,500,000 with transmission system.

The Manning-Bowman Co., Meriden, Conn., manufacturer of enameled ware, electrical appliances, etc., has awarded a contract to the Suzio Construction Co., State Street, for a one-story addition.

The Northern Connecticut Power Co., Thompsonville, Conn., is being organized to take over and consolidate the Northern Connecticut Light & Power Co., Connecticut River Co., Stafford Springs Aqueduct Co., Thompsonville Water Co., Northern Connecticut Power Co., and the Somers Electric Co. Plans are under way for a hydroelectric generating station near Windsor Locks, Conn., to cost about $200,000, preliminary to a hydroelectric power development at that place to cost more than $3,500,000. The consolidated company will be operated by the J. G. White Engineering Corporation, 43 Exchange Place, New York.

The Eagle Lock Co., South Main Street, Terryville, Conn., has work nearing completion on a five-story addition, and expects to have the building ready for occupancy in about 60 days.

The Boston Elevated Railroad Co., 31 St. James Avenue, Boston, has tentative plans under way for a new service, repair and garage building for its motor buses, to cost about $65,000 with equipment. A. J. Blackburn is company engineer.

The Bay State Furniture Co., Boston, has awarded a general contract to the W. & L. Engineering Co., Broadway, Cambridge, Mass., for a one and two-story addition to cost $50,000.

The plant, machinery and business of the Uncas Paper Board Co., Inc., Norwich, Conn., has been secured at a receiver's sale by John G. Kerry, Montreal, operating paper mills, represented locally by Frank McGuire, New London, Conn., attorney. A price of $250,000 was given, the lowest figure authorized by the court, covering 17 acres and buildings. The new owner will maintain operations at the mill and plans extensions and improvements.

The Union Light & Power Co., Franklin, Mass., will issue stock for $257,500, a considerable portion of the proceeds to be used for extensions and improvements in plant and system.

Philadelphia

PHILADELPHIA, Feb. 8.

TENTATIVE plans are being considered by the Belmont Iron Works, Twenty-second Street and Washington Avenue, Philadelphia, for extensions and improvements in the plant of the Keystone Structural Co., Royersford, Pa., recently acquired.

The Certainteed Products Co., Second Street and Erie Avenue, Philadelphia, manufacturer of roofing products, composition floor coverings, etc., has awarded a general contract to Stofflet & Tillotson, Wesley Building, for a one and four-story addition, 45 x 210 ft., and 50 x 106 ft., to cost $200,000 with machinery. R. P. Turner is general manager. Headquarters are at 100 East Forty-second Street, New York.

Under the direction of Charles R. Flint, 25 Broad Street, New York, and Rufus Waples & Co., 322 Chestnut Street, Philadelphia, bankers, plans are being completed for the organization of the National Concrete Products Corporation under Delaware laws, with capital of $10,000,000, to take over and expand a group of plants devoted to the manufacture of concrete blocks, bricks and other cast products.

The Philadelphia Electric Co., Tenth and Chestnut Streets, Philadelphia, has plans for two new power substations to cost $100,000 with equipment. John T. Windrim, Commonwealth Building, is architect.

Contract will soon be let by the John Warren Watson Co., Twenty-fourth and Locust Streets, Philadelphia, manufacturer of automobile shock absorbers, for a new one-story plant, 125 x 780 ft., reported to cost $250,000 with machinery. The Ballinger Co., Twelfth and Chestnut Streets, is architect.

The Department of Supplies, room 312, City Hall, Philadelphia, E. J. Lafferty, director, is asking bids until Feb. 15 for a quantity of copper wire (class 139), hub end gate valves (class 143), and other equipment.

The Duff-Nash Motor Co., 1113 South Broad Street, Philadelphia, local representative for the Nash automobile, has awarded a general contract to the White Construction Co., 1015 Chestnut Street, for a three-story service, repair and headquarters building, 85 x 100 ft., to cost about $100,000. Philip S. Tyre, 114 South Fifteenth Street, is architect.

Fire, Jan. 31, destroyed a number of stills and portion of works of the Atlantic Refining Co., 260 South Broad Street, Philadelphia, at Point Breeze, with loss reported in excess of $85,000 with equipment.

The Motor Requirements Corporation, Camden, N. J., recently organized to manufacture automobile gasoline purifiers, has established a temporary plant at 32 North Third Street. A site is being selected for a new plant for which it is purposed to have plans drawn at an early date. Machinery will be provided for an initial output of about 100,000 purifiers and accessory apparatus per month, with employment of more than 250 operatives.

The Ford Motor Co., Detroit, has awarded a general contract to the Rust Engineering Co., 311 Ross Street, Pittsburgh, for erection of its proposed assembling plant at the former site of the Merchants' Shipbuilding Co., Chester, Pa. E. R. Brown is construction engineer for the company.

The Pennsylvania Gypsum Co., Chester, Pa., has acquired the former plant of the Keystone Plaster Co., foot of Yarnall Street, and will remodel for the manufacture of gypsum wallboard, blocks and kindred products. Operations will begin soon.

Jacoby & Everett, 510 Hamilton Street, Allentown, Pa., architects, are completing plans for a four-story automobile service, repair and garage building, 85 x 140 ft., to cost $125,000 with equipment.

Fire, Feb. 3, destroyed a portion of the plant of the Topton Foundry & Machine Co., Topton, Pa., including enameling department, with loss reported at $150,000 with equipment. Rebuilding plans are under consideration.

The Board of Education of the Hatboro School District, Hatboro, Pa., is considering the installation of manual training equipment in its proposed two-story high school, estimated to cost $120,000, for which Heacock & Hokanson, 1211 Chestnut Street, Philadelphia, are architects.

The Power Oil Co., Emaus, Pa., manufacturer of motor fuel oils, has acquired property formerly used by the Conshohocken Quarry, Conshohocken, Pa., as a site for a new plant, for which plans will soon be drawn. It is estimated to cost $50,000 with equipment. C. S. Herl heads the company.

The Lehigh Power Securities Co., 71 Broadway, New York, operated by the Electric Bond & Share Co., will take over the property of the Harrisburg Light & Power Co., Harrisburg, Pa., in connection with other recent acquisitions at Lancaster, Pa., and vicinity, and will operate in conjunction with the Pennsylvania Power & Light Corporation, Allentown, Pa. Plans are under way for extensions and improvements, including additional equipment installation. P. B. Sawyer, head of the Pennsylvania company, will occupy a like position with the Harrisburg organization, succeeding E. G. Connette.

Gulf States

BALTIMORE, Feb. 8.

BIDS are being asked by the Rathborne, Hair & Ridgeway Co., 2248 Laflin Street, Chicago, manufacturer of wooden boxes, etc., for its proposed branch mill on a 5-acre tract recently acquired at Jackson, Mich., to cost $100,000 with machinery. B. F. Masters is president.

The East Texas Public Service Co., Marshall, Tex., is arranging an expansion program for 1926 to cost about $1,250,000, including the erection of three new ice-manufacturing and refrigerating plants, extensions in power plants, new power substations and additions in transmission system. Knox Lee is general manager.

The Galion Iron Works, Galion, Ohio, is reported to be planning the construction of a new factory branch and distributing plant at Birmingham.

The Board of Education, Laurel, Miss., plans the installation of manual training equipment in its proposed new high school, to cost $125,000, for which plans have been drawn by P. J. Krouse, Meridian, Miss., architect.

The City Commission, Gainesville, Fla., plans the enlargement of the municipal electric light and power plant with the installation of a new turbo-generator, boilers and auxiliary power equipment, estimated to cost $100,000. George H. Cairns is city manager.

Ellington Sugars, Inc., Luling, La., is considering rebuilding the portion of its local sugar mill destroyed by fire Jan. 30, with loss in excess of $100,000 with equipment.

The Boca Raton Construction Co., Inc., Boca Raton, Fla., is in the market for quarrying machinery. It will also

purchase a line of contractors' equipment and road-building machinery.

The J. Ray Arnold Lumber Co., Groveland, Fla., will rebuild the portion of its lumber mill and woodworking plant recently destroyed by fire with loss of $85,000 including equipment. Additional machinery will be installed.

The Orange Car & Steel Co., Orange, Tex., operating a structural steel works with department for steel freight car manufacture, has plans under way for enlargements and the installation of additional equipment. The work will cost about $75,000.

The Trinity Valley Iron & Steel Co., 1002 Jarbis Street, Fort Worth, Tex., has plans for two additions in the Camp Bowie section, two stories, 45 x 140 ft., and one-story, 30 x 87 ft., to cost $50,000 with equipment.

The City Commission, Jacksonville, Fla., has tentative plans for extensions in the municipal electric light and power house, including the installation of additional equipment, to cost in excess of $60,000. Frank H. Owen is commissioner of public utilities.

The Southern Utilities Co., Palatka, Fla., is considering extensions and betterments in its steam-operated electric power plant at West Palm Beach, Fla., with the installation of additional equipment to double the present capacity.

The Magnolia Petroleum Co., Dallas, Tex., is completing plans for the construction of an 8-in. pipe line from El Dorado, Ark., to the Beaumont, Tex., oilfields, about 350 miles, with pumping stations and auxiliary equipment, estimated to cost $2,500,000.

The Opp Ice & Fuel Co., Opp, Ala., is considering rebuilding the portion of its ice-manufacturing plant destroyed by fire Jan. 31, with loss estimated at $40,000 including equipment.

The Board of Education, Baton Rouge, La., plans the installation of manual training equipment in its proposed three-story and basement high school at East Baton Rouge Parish, to cost $500,000, for which bids are being asked on a general contract until March 3. William T. Nolan, Canal-Commercial Building, New Orleans, is architect.

The Florida Power & Light Co., Miami, Fla., has acquired property at Inlet Island, Lake Worth, Fla., and is said to be planning the construction of a new steam-operated electric power house, to cost $200,000 with transmission lines.

The Lexington Oil Mill Co., Lexington, Miss., will rebuild the portion of its plant recently destroyed by fire, with loss close to $70,000 with machinery. New cottonseed oil machinery will be installed with majority of equipment electrically-operated. G. S. Beall, Jr., is general manager.

The United States Sheet & Window Glass Co., Shreveport, La., has leased the plant of the Twin City Glass Co., Texarkana, Tex., for a term of years. Plans are under advisement for extensions and additional machinery installation. It will be operated as a branch works.

The Rio Grande Lumber & Fuel Co., El Paso, Tex., contemplates the purchase of ice-making machinery for installation in a local plant.

Buffalo

BUFFALO, Feb. 8.

CONTRACT has been awarded by the Fedders Mfg. Co., 57 Tonawanda Street, Buffalo, manufacturer of automobile radiators and kindred equipment, to the Ackham Construction Co., Crosby Building, for a one-story addition, 50 x 200 ft., to cost $30,000. L. F. Fedders is president.

The Municipal Board of the village of Potsdam, N. Y., C. E. Haywood, chairman, is asking bids until Feb. 25 for two 200-hp. hydroelectric power units in connection with a filtration plant with daily capacity of 2,000,000 gal. Bogart & Pohl, 30 Church Street, New York, are engineers.

The Progressive Foundry Co., Rochester, N. Y., has been organized with a capital of $250,000 and 7000 shares common stock, no par value, to take over and consolidate the Rochester Castings Corporation and the Progressive Co., Rochester. The new company is considering extensions and improvements in existing foundries and facilities.

The Hewitt Rubber Co., 240 Kensington Avenue, Buffalo, has completed plans for a merger with the Gutta Percha & Rubber Mfg. Co., 53 Franklin Avenue, Brooklyn, manufacturer of mechanical rubber goods. The Brooklyn business will be removed to the Hewitt works, where increased facilities will be provided, with employment of close to 500 operatives. The Gutta Percha organization will be operated as an individual unit. Temporary executive offices will be continued at Brooklyn, later to be removed to Buffalo. John H. Kelly is president of the Hewitt company.

The addition to be erected at the plant of the Crouse-Hinds Co., Wolf and Seventh Streets, Syracuse, N. Y., manufacturer of electrical products, will be equipped largely as a forge and blacksmithing shop. It will be two stories and cost $40,000. Gaggin & Gaggin, University Building, are architects.

The Packard Printing Machinery Co., Geneva, N. Y., contemplates rebuilding the portion of its plant recently destroyed by fire with loss reported at $100,000. Peter R. Cole is president.

The Department of Public Works, John J. Love, commissioner, Municipal Building, Buffalo, is asking bids until Feb. 18 for 1720 tons of cast iron pipe, 6 to 36 in.; 42 tons cast iron specials, 6 to 36 in.; bronze-mounted gate valves, couplings, etc.

Fire, Feb. 4, destroyed a portion of the plant of the A. E. Britten Co., East Street, Honeoye Falls, N. Y., manufacturer of electrical transformers and kindred apparatus, with loss estimated at $50,000 including equipment. It is planned to rebuild.

The Rochester Gas & Electric Co., Rochester, N. Y., has awarded a general contract to the Ferro Concrete Construction Co., Cincinnati, for a service, repair shop and garage building, to cost $200,000 with equipment.

Pittsburgh

PITTSBURGH, Feb. 8.

SALES of machine tools have been fewer the past week than in the week previous, but the trade looks upon the recession as merely temporary in view of considerable pending business and the large amount of plant construction and betterments that are in sight in this district. The Steel Corporation, the Weirton Steel Co., Pittsburgh Crucible Steel Co. and the Columbia Steel Co., have authorized large expenditures for plant betterments and extensions and while most of it is for heavy machinery, shop equipment will benefit not only on direct purchases but by purchases by those who will furnish the mills, cranes and other heavy equipment.

The Lustro Coated Sheets Co., Pittsburgh, has placed contract with the Austin Co., for a plant extension. It is a subsidiary of the Follansbee Brothers Co., and manufactures nickel and copper coated sheets.

Charles Evans, Titusville, Pa., has leased the mill of the Cyclops Steel Co., Inc., now in receivership, and will operate the plant until further notice for the manufacture of tool steel. Plans are under way for the organization of a company to purchase the property from the receiver and expand present facilities.

The Paramount Furniture Co., Warren, Pa., has awarded a general contract to the G. Brown Co., 7 Canton Street, for its new two-story plant, 80 x 225 ft., to cost $85,000 with machinery.

Fire, Jan. 29, destroyed a portion of the plant of the Sheffield Glass Bottle Co., Sheffield, near Warren, Pa., with loss reported at $300,000 including equipment. Plans for rebuilding are being considered.

The Portsmouth By-Products Coke Co., Williamson, W. Va., has completed plans for a steel tipple at its Freeburn mine, to cost $200,000 with equipment. Work will begin soon.

The No-Leak Paper Dish Co., Thirty-seventh and McColloch Streets, Wheeling, W. Va., has begun the erection of a new three-story plant, 50 x 92 ft., to replace one recently destroyed by fire. It will cost about $25,000. A general contract has been given to R. B. Keffer, Warwood, W. Va. E. T. Maxwell is president.

The Guyan Machine Shops, Logan, W. Va., machinery dealers, have inquiries out for a low swing lathe, 6 x 72 in. bed; a reduction gear to transmit 5 hp., with ratio of about 50 to 1; motors, from 1 to 20 hp., three-phase, 60-cycle, 220 volts; structural steel beams, channels, angles, etc.; steel and cast iron for gear blanks, 4-in. stock, 12-in. diameter; one electric generator, 20 to 30-kw. capacity, direct-connected to steam engine, and 4 to 6-in. cast iron pipe.

The Board of Education, Verona, Pa., is considering the installation of manual training equipment in a proposed three-story and basement high school addition to cost $300,000. G. M. Beall & Sons, National Bank Building, Monessen, Pa., are architects.

The Owens Bottle Co., Charleston, W. Va., is taking bids for the erection of a two-story addition, 120 x 1025 ft., to be equipped as a box-manufacturing plant and for general operating service, to cost $160,000. The Devore Co., Nicholas Building, Toledo, Ohio, is architect and engineer.

Headquarters of the company are in the Nicholas Building, Toledo.

The Weston Glass Co., Weston, W. Va., manufacturer of hollowware, is said to have plans under way for extensions and the installation of additional equipment. Louis Wohinc is president and general manager.

The American Thermos Bottle Co., Huntington, W. Va., is reported to have plans for enlargements and improvements in the present factory, with installation of machinery to double the present capacity, to cost in excess of $90,000. Headquarters are at Norwich, Conn.

The Vitro Mfg. Co., Fulton Building, Pittsburgh, manufacturer of enamels, etc., has awarded a general contract to the Fred Brunner Co., Fulton Building, for a four-story addition at 729-31 Fairston Avenue, to cost $30,000 with equipment.

The Consolidated Power & Light Co., Huntington, W. Va., has preliminary plans for extensions and betterments at its steam-operated electric power house at Kenova, W. Va., with installation of 30,000-kva. turbo-generator and auxiliary machinery, to double the present capacity, estimated to cost $1,200,000.

The Chain Grate Incinerator Co., Inc., Forbes and Jumonville Streets, Pittsburgh, has been organized with $100,000 capital stock to design, sell and operate chain grate incinerators and incinerator plants. The company has no manufacturing facilities but will purchase all requirements, except the stoker and appurtenances, in the open market. Officers include William F. Hill, president; J. R. Moore, vice-president; C. R. McMillen, secretary and treasurer, and W. J. Springborn, sales manager.

Cleveland

CLEVELAND, Feb. 8.

MACHINE tool business is rather slow, although dealers are working on a fair volume of scattered inquiries. An order for five turret lathes was placed with a Cleveland manufacturer by Fairbanks, Morse & Co., for its Beloit, Wis., plant. The Harris Automatic Press Co., Cleveland, purchased a 36-in. boring mill. The United States Aluminum Co., Cleveland, has issued a list which includes a 24-in. heavy duty drilling machine, a No. 3 universal milling machine, a 24-in. cold saw and a tool room lathe. A local manufacturer of turret lathes reports a good volume of orders from scattered sources, mostly for single machines.

The Automotive Specialties Co., Cleveland, has been incorporated with a capital stock of $100,000. D. C. Hollister is president; A. C. Taylor, vice-president, and E. H. Wise, secretary and treasurer. It has taken over the factory and machinery at 6921 Colfax Road, and is doing a general line of stamping work in addition to its own products.

The new Poland Avenue foundry of the Youngstown Foundry & Machine Co., erected at a cost of $200,000, is about to begin operations. It replaces a building destroyed by fire. Part of the work now being done at the company's Reserve Street plant will be transferred to the new foundry. At the annual meeting, Isaac Wilkoff was made a director, succeeding Emanuel Hartzell, deceased.

The Owen Bucket Co., Rockefeller Building, Cleveland, has taken bids for a two-story factory, 92 x 120 ft. The George S. Rider Co., 612 Century Building, is the engineer. William H. Botten is president.

The J. Roemer Heating Co., Builders' Exchange, Rose Building, Cleveland, will erect a four-story factory, 81 x 131 ft. on East Twenty-second Street, a portion of which the company will occupy for the manufacture of humidifying devices.

The United States Air Compressor Co., 5300 Harvard Avenue, Cleveland, has awarded contract for a one-story addition 80 x 90 ft. R. L. Bacher is president.

The Barnes Motor Co., 1938 East Twenty-first Street, Cleveland, will build an automobile sales and service building in East Cleveland, involving an estimated expenditure of $100,000.

The Automotive Supply Co., Portsmouth, Ohio, will build a four-story and basement garage and office building, 112 x 128 ft. C. A. Sennatt is manager and Wesley Ridenour, First National Bank Building, Portsmouth, is the architect.

The Cleveland Automobile Co., has awarded contract to the William Dunbar Co., for a four-story addition, involving an expenditure of about $200,000. Ernest McGeorge, 3030 Euclid Avenue, is the engineer.

The Youngstown Boiler & Tank Co. has purchased the assets and business of the Lucius Mfg. Co., Uhrichsville, Ohio, manufacturer of a patented light boiler. C. V. Lucius, president and organizer of the latter company and patentee of its products, becomes a vice-president and active in the management of the Youngstown company. The present Uhrichsville property will be continued in operation. The Youngstown Boiler & Tank Co. is withdrawing from the heavy oil tank business of the Southwest, in which it has specialized, and is devoting capacity largely to production of lighter tanks. By the acquisition of the Uhrichsville company, the Youngstown maker adds to its products a special truck tank.

The Commercial Shearing & Stamping Co., Youngstown, directed by George F. Alderdice, former sales manager Brier Hill Steel Co., is developing a number of new products which will probably be placed on the market this year. W. A. Beecher, president.

Chicago

CHICAGO, Feb. 8.

MOST machine-tool dealers are well satisfied with the volume of business transacted during the month of January. The first two weeks of that month did not show up well, but the last 15 days brought out a large number of diversified orders. At the moment, the volume of business is well maintained and fresh inquiries are numerous. No changes in prices are reported and deliveries average 45 to 60 days for all types of tools. Milling machines are still in good demand with deliveries ranging from 60 to 90 days. Planers and shapers are probably next in line from the standpoint of extended shipments. The Sante Fe is inquiring for two motor-driven 2-in. drills, Colburn or equal, and three frog and switch planers. The Nash Motors Co., Kenosha, Wis., is again in the market for miscellaneous tools, and the National Lock Co., Rockford, Ill., is contemplating the purchase of several machines. The International Harvester Co., Chicago, has bought a 5-ft. radial drill.

Dealers report that used equipment is difficult to buy. Large lists, such as that of the Haynes Motor Co., Kokomo, Ind., have been quickly taken up by other motor car builders and large industrial plants.

The Major Equipment Co., 360 North Michigan Avenue, Chicago, has acquired for $85,000 the southeast corner of Fullerton and Knox Avenues, 125 x 180 ft. The company manufactures electrical supplies and contemplates the erection of a factory.

The Central States Power & Light Co., Davenport, Iowa, has plans under way for extensions and improvements to cost in excess of $850,000.

The Universal Portland Cement Co., 210 South La Salle Street, Chicago, has purchased property in Cleveland upon which it intends to build a plant with an annual capacity of 1,500,000 bbl. Plans have been drawn and construction is expected to start in the near future. The Universal company has plants at Chicago, Pittsburgh and Duluth with annual capacity of over 16,500,000 bbl.

The Electrical Engineers' Equipment Co., 710 West Madison Street, Chicago, has awarded a general contract without competition to Stone & Webster, Inc., 38 South Dearborn Street, for a one-story plant, 270 x 275 ft., at Melrose Park, Chicago, to cost about $100,000 with equipment. Fay Woodmansee is president.

The Verb Sign Co., 2144 South Troy Street, Chicago, manufacturer of electrical signs and displays, has leased a one-story factory, 90 x 100 ft., at 4543-45 West Lake Street, and will remove its present works to this location. Additional equipment will be provided.

The Mid-City Body Co., 401 North Morgan Street, Chicago, manufacturer of automobile bodies, will build a new one-story plant, 85 x 125 ft., to cost $40,000. H. M. Garriott, Consolidated Building, Indianapolis, is architect.

The Standard Gas & Electric Co., Minneapolis, Minn., is disposing of a bond issue of $7,500,000, a portion of the proceeds to be used for extensions and improvements in power plants and system. It has arranged for the purchase of a controlling interest in the Wisconsin Public Service Corporation, Green Bay, Wis., and the California-Oregon Power Co., San Francisco, and plans expansion in these properties. John J. O'Brien is president.

The Meyer Brake Co., First National Bank Building, R. J. Meyer, general manager, is selecting a site for a new plant to manufacture automobile brake equipment and other apparatus. The project is reported to cost about $50,000.

The Otter Tail Power Co., Fergus Falls, Minn., has preliminary plans for a new steam-operated electric power plant

at Washburn, N. D., and expects to begin work early in the summer.

The Nuckolls Packing Co., South Santa Fe Avenue and Spring Street, Pueblo, Colo., has begun superstructure work for its proposed five-story and basement cold storage and refrigerating plant, estimated to cost $100,000 with equipment. Henschien & McLaren, 1621 Prairie Avenue, Chicago, are architects.

The Crane Co., 836 South Michigan Avenue, Chicago, has asked bids for an addition to its Corwith plant at Kedzie Avenue and Forty-first Street, three-stories and basement, 120 x 475 ft., reported to cost $150,000 with equipment. Graham, Anderson, Probst & White, 80 East Jackson Boulevard, are architects.

The Pryor Brass Foundry Co., Marshalltown, Iowa, is considering plans for a one-story addition and expects to begin work in the spring. F. E. Schmidt is general manager.

The Multi-Electrical Mfg. Co., 1848 West Fourteenth Street, is considering extensions and improvements in its plant and the installation of additional equipment. C. T. McDonald is president.

Mathias Klein & Sons, 3200 Belmont Avenue, Chicago, manufacturer of tools for electrical linemen, etc., has acquired property on Wrightwood Avenue, totaling about 80,000 sq. ft., as a site for a new plant, reported to cost $90,000 with equipment. It is expected to begin work late in the spring.

The Waterloo Metal & Mfg. Co., Waterloo, Iowa, recently incorporated with $25,000 capital stock, succeeds the sheet metal department of the Waterloo Mfg. Co. and will continue to occupy the building formerly used by that company. The new organization will handle a general line of sheet metal work, including sheet metal work on buildings and the manufacture of furnace fittings, stampings, etc. Very little new equipment is being purchased. Officers include Julius Roeder, president; Ferdinand Koch, vice-president, and A. A. Roeder, secretary-treasurer.

Detroit

DETROIT, Feb. 8.

AN appropriation of $26,000 has been authorized by the State Administrative Board, Lansing, Mich., for extensions and improvements in the power plant at the State reformatory at Ionia, Mich., including the installation of additional equipment.

The Universal Cooler Co., Book Building, Detroit, is considering the erection of a two-story top addition at its plant at 2736 Twelfth Street, to cost $30,000. New equipment will be installed. A. H. Meinke is vice-president.

The Eaton Axle & Spring Co., East 140th Street, Cleveland, manufacturer of automobile axles and springs, is said to have preliminary sketches under way for initial units of its proposed plant on 15-acre tract recently acquired at Detroit.

The Board of Education, Newberry, Mich., plans the installation of manual training equipment in its proposed two-story senior and junior high school, to cost $300,000, for which bids are being asked on a general contract until March 1. G. Arntzen, 716 Ludington Street, Escanaba, Mich., is architect.

The American Wood Rim Co., Onaway, Mich., manufacturer of automobile rims, etc., is arranging to rebuild the portion of its plant recently destroyed by fire with loss of about $500,000. New equipment will be installed. E. J. Lobdell, Jr., is resident manager, in charge.

The Saginaw Products Co., Saginaw, Mich., has arranged an appropriation of $250,000 for extensions in its malleable iron foundry on which work has been started. It is proposed to provide facilities for an increase from 2000 to 3000 tons per month.

The Detroit Edison Co., Detroit, has authorized an increase in capital from $85,000,000 to $120,000,000, a portion of the proceeds to be used for extensions and improvements in power plants and system.

The Whitehead & Kales Co., 2361 Beecher Avenue, Detroit, operating a structural steel works, has awarded a general contract to the Batchelder-Wasmund Co., Detroit, for a one-story addition, to cost about $40,000 with equipment.

The Marshall Foundry Co., Marshall, Mich., recently reorganized, has acquired the local plant of the Flint Foundry Co. Plans are under way for enlargments and the installation of additional equipment to double the present output. H. A. McDonough is president.

The Michigan Central Railroad Co., Detroit, has preliminary plans under way for a new power house at West Detroit, to cost more than $100,000 with equipment. Battey & Kipp, 123 West Madison Street, Chicago, are engineers.

The Grand Rapids Welding Supply Co., Grand Rapids, Mich., recently organized, has arranged for the operation of a local plant for the manufacture of welding apparatus, industrial oxygen, etc. C. B. Macauley is president.

The National Smelting & Refining Co., 1842 Livernois Avenue, Detroit, is completing plans for two additions at Ecorse, Mich., 60 x 200 ft. and 70 x 150 ft., to cost $115,000 with equipment.

The American Rocking Chair Fan Co., care Anthony Malkiewicz, 10031 Joseph Campau Avenue, Detroit, has been incorporated to manufacture fans operated by the rocking motion of a chair. It will do most of the work in its own plant, but will purchase very light wire screens for grounds, hard rubber posts and papier mache.

Milwaukee

MILWAUKEE, Feb. 8.

NEW business is developing moderately for local machine tool builders. Active inquiry is again being made by the automotive industries, and sales on this account during the remainder of the month and in March are expected to be fairly heavy. Tool builders are working on extensive orders for automobile factories which were placed two to four months ago for January-March delivery. The call for special equipment is good. Used machinery is reported to be moving slowly.

The Milwaukee Board of Industrial Education, 621 Prairie Street, Milwaukee, will ask bids about March 1 for the construction of the third unit of the Central Continuation School, to be seven stories, 143 x 268 ft., and estimated to cost about $1,650,000. The architects are Van Ryn & DeGelleke, 114 Grand Avenue, local. Archie O. Muehl is secretary of the board.

The Peterson-Colwell Co., Inc., 646 Builders' Exchange, Minneapolis, is low bidder for constructing the new filtration plant of the Racine, Wis., municipal waterworks system at $177,681. The engineers are Alvord, Burdick & Howson, 8 South Dearborn Street, Chicago. With equipment the cost will be about $300,000. Specifications are not yet ready for bidders. F. M. McElroy is superintendent of the water department.

The Chicago, Milwaukee & St. Paul Railway receivers, represented by H. E. Byram, have indicated their intention to proceed as soon as possible with the reconstruction of elevator E at Milwaukee, destroyed by fire two years ago, so that the new facilities will be ready to handle the 1926 crop. The estimated cost of the reconstruction and replacement of equipment is $1,750,000. E. A. Lalk is general agent at Milwaukee.

The Dunham-Keith Co., Milwaukee, manufacturer of cylinders, has let the general contract to the Meredith Brothers Co., 253 Washington Street, for the construction of an addition, 55 x 80 ft., at Twenty-sixth and Greves Streets, to cost about $30,000 complete.

The J. Ruesch Printing Machinery Co., 485 Broadway, Milwaukee, has plans by Olive Webb, architect, 544 Forty-ninth Street, for a new machine shop, warehouse and office building, three stories, 30 x 120 ft., estimated to cost $50,000 with equipment.

The Board of Education, Marshfield, Wis., will open bids Feb. 23 for the construction of a $100,000 addition to the Purdy vocational and junior high school, designed by Parkinson & Dockendorff, architects, La Crosse, Wis.

The Milwaukee Warehouse Co., Milwaukee, has engaged Leenhouts & Guthrie architects, 424 Jefferson Street, to make plans for a $250,000 cold storage and general warehousing plant, 177 x 117 x 55 ft., five stories and basement, at South Water and Park Streets.

The Forest Home Chevrolet Co., 970 Forest Home Avenue, Milwaukee, will take bids from Feb. 12 to 26 for the construction of a $50,000 sales and maintenance building, 100 x 165 ft., part two stories and basement. The architects are Siebert & Kegler, 1102 Straus Building, local.

The Walker Mfg. Co., Hamilton Street and Michigan Boulevard, Racine, Wis., manufacturer of automobile parts, will build an addition to its foundry, 90 x 121 ft. Battey & Kipp, 123 West Madison Street, Chicago, are engineers.

The Chicago Pipethread Machine Co., Racine, Wis., recently incorporated with $25,000 capital stock, is a part of the Wisconsin Machinery Co., Racine, and its products are being manufactured in the latter company's plant. A full line of power pipe threading machinery will be made, including 2-in., 3-in., 6-in., 8-in. and 12-in. machines. The 2-in. machine is on the market and the other sizes will soon be brought out. R. T. Ingalls is secretary.

The Sturgeon Bay Shipbuilding & Dry Dock Co., Sturgeon

Bay, Wis., has been incorporated but has not yet completed plans for the future. The former company of that name is still in the hands of a receiver.

Cincinnati

CINCINNATI, Feb. 8.

MACHINE tool sales have slumped severely the past week. While local builders have a large volume of inquiries on which they are quoting, buyers are apparently in no hurry to close for new equipment. With four sizable lists before the trade the railroads are the most important source of prospective business, but doubt is expressed as to how promptly the carriers will purchase tools. Although several attractive inquiries from automobile makers are pending, builders believe that the Detroit district will be far less lucrative than in 1925. They are basing their opinion partly on the understanding that one of the foremost companies in the automotive field has adopted a policy of purchasing only those tools which are absolutely necessary and will adhere to this program throughout 1926.

Electrical manufacturers are showing more interest in new tools, and have bought a few machines locally. Business from the textile industry is negligible, but several builders report good prospects for attractive sales within the next few months. The tendency on the part of many industrial buyers to purchase used tools instead of new machinery has become pronounced and has cut into the sales of local manufacturers.

Almost without exception, Cincinnati builders are able to make earlier deliveries than two months ago. Plant operations have been well sustained, but the amount of future business on hand has been steadily diminishing. Unless there is an upward trend in sales, local manufacturers will have to curtail production schedules.

The General Electric Co., Schenectady, N. Y., bought several radial drills locally. The Cincinnati Planer Co. sold a 30-in. Hypro planer to a New England manufacturer. The New York Central is reported to have purchased two lathes for its Toledo, Ohio, shops from a St. Louis builder. The Link-Belt Co., Chicago, bought a 1000-lb. single frame hammer from the Niles-Bement-Pond Co. The latter also booked a 48-in. 200-ton wheel press for Armour & Co., Chicago, and a 22-in. single traveling-head shaper for the United Fruit Co. for export. The General Tool & Engineering Co., Detroit, took a 26-in. Worcester shaper and the Chicago Pump Co., Chicago, bought a Morris horizontal boring and drilling machine. The H. O. Canfield Co., Bridgeport, Conn., purchased two 21-in. Aurora drills, while the Link-Belt Co., Chicago, closed for two Long & Allstatter punching machines. A St. Louis company bought a 26-in. shaper. A local builder sold a 32-in. x 22-ft. lathe in St. Louis and a 20-in. x 10-ft lathe in New York. A Louisville company purchased a 22-in. Greaves & Klusman lathe. The Buick Motor Co., Flint, Mich., and a Syracuse, N. Y., manufacturer each bought two lathes. A local turret lathe manufacturer booked several orders for single machines.

The demand for used machinery has been strong. The Bucyrus Co., South Milwaukee, Wis., bought a 27-in. x 14-ft. timesaver lathe, a 17-in. x 12-ft. lathe and an 8-in. Pratt & Whitney rotary surface grinder. The Babcock & Wilcox Co., Bayonne, N. J., is the buyers of a 42-in. x 12-ft. Pond reversing motor-driven planer and a Bridgeport wet grinder. The Vermont Marble Co., Proctor, Vt., purchased a 28-in. x 12-ft. Pond lathe, while the De LaVerne Machine Co., New York City, bought several small grinders.

The Boye & Emmes Machine Tool Co., Cincinnati, is clearing away the debris from the fire which completely destroyed its plant last week and the new building will be erected immediately. It is planned to resume operations at the earliest possible moment. The patterns were in another building and were not destroyed.

The property of the Otto Marmet Coal Co., Cincinnati, will be offered for sale at the Kanawha County Court House, Charleston, W. Va., on March 2. Equipment of the company includes tipples, railroad and mine tracks, steamboats, derrick boats, barges, harbor machinery and electric coal mining machinery. V. L. Black, G. W. Williams and E. L. Waddell are the receivers.

The Ross Cutter & Silo Co., Springfield, Ohio, has been incorporated and has purchased the plant and business of the E. W. Ross Co. It plans to manufacture cutters and silos for farms.

The Reedy Elevator Mfg. Co., 11 West Second Street, Cincinnati, recently incorporated, has bought the assets, chattels and other property of the H. J. Reedy Elevator Co. and will manufacture freight and passenger elevators.

The Baldwin Piano Co., 1825 Gilbert Avenue, Cincinnati, has awarded a general contract to the Hodges-Erwin Co., Cincinnati, for a one-story addition to cost about $75,000 with equipment. Lockwood, Greene & Co., 400 North Michigan Avenue, Chicago, are architects and engineers.

The Stearns & Foster Co., Wyoming Avenue, Lockland, Ohio, manufacturer of wire spring mattresses, has awarded a general contract to the Fisher-Devore Co., Dixie Terminal Building, Cincinnati, for two additions, each four stories, to cost $200,000 with equipment. W. S. Stearns is president.

The Campbell & Dann Mfg. Co., Tullahoma, Tenn., manufacturer of turned hardwood products, will proceed with the rebuilding of the portion of its plant recently destroyed by fire, with main buildings, 40 x 200 ft., and 60 x 160 ft., estimated to cost about $50,000. The company plans the early purchase of woodworking and flooring machinery, as well as a Corliss engine and auxiliaries for power station. D. B. Campbell is secretary.

The National Power & Light Co., Knoxville, Tenn., operating the Knoxville Power & Light Co., Memphis Power & Light Co., Memphis, Tenn., and other electric utilities, is disposing of a preferred stock issue of $10,000,000, a portion of the fund to be used for extensions and improvements in power plants and transmission system, including additional equipment. H. C. Abell is president.

The Covington Cotton Oil Mill, Brownsville, Tenn., is contemplating rebuilding the portion of its cottonseed oil mill, occupying leased quarters, recently destroyed by fire, with loss of about $75,000 including machinery.

E. D. Watkins, Irvine, Ky., is planning the purchase of oil refining equipment for installation in a local plant.

The Board of Education, Prospect, Ohio, is considering the installation of manual training equipment in its proposed two-story high and grade school to cost $90,000, for which bids are being asked on a general contract. John Adams, 247 East Broad Street, Columbus, Ohio, is architect.

J. V. Wigle, Spencer, Tenn., and associates are planning the construction of a local electric light and power plant for commercial service to cost $30,000.

Alexander M. Robinson, Georgetown, Ky., machinery dealer, has inquiries out for a motor-driven centrifugal pump, with capacity about 3000 gal. per min.; also for a quantity of 4 and 6-in. cast iron pipe, with gate valves and other fittings.

The Hickman Mill & Supply Co., Hickman, Tenn., will purchase a quantity of woodworking machinery and expects to ask bids in 60 to 90 days. D. D. Martin is president.

The Perfect Belt Mfg. Co., Mitchell Street, Louisville, manufacturer of mechanical belting, etc., is considering rebuilding the portion of its plant recently destroyed by fire, with loss of about $21,000 including equipment.

The Kentucky-Tennessee Light & Power Co., Bowling Green, Ky., has acquired the municipal electric light and power plant, and waterworks at Tell City, Ind. Plans are under way for extensions and the installation of additional equipment.

Indiana

INDIANAPOLIS, Feb. 8.

CONTRACT has been let by the Dudlo Mfg. Co., Wall Street, Fort Wayne, Ind., manufacturer of electric coils, wires, etc., to the Buesching-Hagerman Construction Co., 402 East Superior Street, for a one-story addition, 140 x 310 ft., to cost approximately $100,000 with equipment. George A. Jacobs is general manager.

The Helt Township Board of Education, Dana, Ind., is considering the installation of manual training equipment in its proposed two-story and basement high school addition, to cost $90,000, for which bids will be asked on general contract early in March. H. L. Fillinger, Dana, is architect and engineer.

The Terre Haute, Indianapolis & Eastern Traction Co., Indianapolis, recently acquired by the Central Indiana Power Co., for a consolidation of interests, has preliminary plans under consideration for extensions in its steam-operated electric power house on West Tenth Street, to increase the capacity from 20,000 to 50,000 kw., reported to cost about $1,000,000. The Central Indiana company is operated by the Middle West Utilities Co. interests, 72 West Adams Street, Chicago.

The Board of Education, Terre Haute, Ind., plans the installation of manual training equipment in its proposed two-story and basement east side junior high school, to cost $300,000, for which bids have been asked on revised plans. Johnson, Miller, Miller & Yeager, 30 North Fifth Street, are architects.

The Chevrolet Brothers Mfg. Co., 410 West Tenth Street, Indianapolis, manufacturer of special racing automobiles, plans extensions and the installation of equipment for large increase in output. The expansion is reported to cost $75,000. Arthur Chevrolet is president and Louis Chevrolet vice-president.

Shepherd & James, Indianapolis, have leased a portion of the building at 21 North Alabama Street and will operate a machine shop for general repairs and parts production.

The Board of Education, Jeffersonville, Ind., Homer E. Bunnell, president, plans the installation of manual training equipment in the production addition to the Ohio Falls and Howard Park schools, to cost $60,000, for which bids will be asked on a general contract early in March. Oscar W. Holmes, Coleman Building, Louisville, is architect, in charge.

The American Vitrified Products Co., Brazil, Ind., is arranging for the early rebuilding of the portion of its sewer pipe manufacturing plant recently destroyed by fire, with loss reported at $100,000 including equipment. Headquarters are at Akron, Ohio. G. R. Hill is president.

The Postalwait Macnine Co., Indianapolis, has leased property at 1841 Ludlow Avenue for the establishment of a plant.

The Standard Oil Co., Evansville, Ind., will soon begin the construction of a three-story storage and distributing plant at Division Street and Bray Avenue, with one-story machine works, and automobile service, repair and garage building for company motor trucks. The entire project will cost $200,000 with equipment. W. J. Lang is local manager.

South Atlantic States

BALTIMORE, Feb. 8.

PLANS are being prepared by the Southern Couch Mfg. Co., 431-37 Colvin Street, Baltimore, for a five-story and basement addition, 32 x 100 ft., to cost $100,000. Stanislaus Russell, 11 East Lexington Street, is architect and will soon ask bids.

The Mallory Machinery Corporation, 522 Light Street, Baltimore, machinery dealer, is making inquiries for a steam hoist, about 10 x 12 in., double cylinder, double drum.

The American Jobbers Supply Co., Baltimore, care of the Industrial Bureau, Baltimore Association of Commerce, Chamber of Commerce Building, recently organized, has acquired property at Ninth and Chesapeake Streets, Curtis Bay, for a new factory and distributing plant for the manufacture of electric pole line equipment, cross-arms, etc., estimated to cost $50,000. H. L. Joslyn is president; A. O. Schleif will be plant manager.

Lewter F. Hobbs, Norfolk, Va., machinery dealer, has been making inquiries for a 10-ton stiff-leg derrick, 60-ft. boom, with 3-drum electric hoist and 1-yd. capacity bucket; also for a number of mine cars, 4-yd. capacity, 36-in. gage, 2-yd. capacity, 24-in. gage, and several crushers, McCulley type.

Wilson Brothers, 122 West Twenty-fifth Street, Baltimore, hardware products, are asking bids for a three-story and basement storage and distributing plant, 30 x 80 ft., to cost about $50,000 with equipment. John R. Forsythe, 16 East Lexington Street, is architect. Robert and Harvey Wilson head the company.

The Columbus Electric & Power Co., Columbus, Ga., has construction in progress on the first unit of its hydroelectric generating plant at Bartletts Ferry, near Columbus, with capacity of 40,000 hp., and expects to have it ready for service in the near future. Closely following, work will begin on a second unit of like size. The entire project will cost $7,500,000 with transmission system.

The Hardaway Contracting Co., Columbus, Ga., has acquired about eight acres and plans the early construction of a locomotive and heavy equipment repair and reconditioning plant. A main one-story machine shop, 50 x 300 ft., with assembling department, and auxiliary buildings will be erected, estimated to cost $35,000. B. H. Hardaway is head.

The Central of Georgia Railway Co., Savannah, Ga., has awarded a general contract to Joseph E. Nelson & Sons, 3240 South Michigan Boulevard, Chicago, for a new engine house with repair facilities at Albany, Ga., to cost $90,000 with equipment.

The American Ice Co., Weston Building, Washington, will build a one-story refrigerating plant on Twenty-third Street, to cost about $40,000. C. Leslie Weir, 41 East Forty-second Street, New York, is company engineer.

The Lummus Cotton Gin Co., Columbus, Ga., has acquired property at Memphis, Tenn., and contemplates the erection of a branch plant for the manufacture of cotton-ginning machinery and parts. Work will probably begin in the summer. Howell Hollis is secretary.

The Broad River Power Co., Columbia, S. C., has arranged for a bond issue of $2,500,000, a portion of the proceeds to be used for extensions and improvements in power plants and systems. Work is now in progress on the first unit of a steam-operated electric power plant at Parr Shoals. The company is under the management of the General Gas & Electric Co., 50 Pine Street, New York.

The Chief of Engineers, Washington, has authorized the construction of a power plant for the District of Columbia water supply system, and the purchase of three electric generators, automatic switching apparatus and other equipment.

The East Carolina Railroad Co., Tarboro, N. C., H. C. Bridges, president, is said to be planning to purchase a number of steam shovel dipper buckets, 1 and ½-yd. capacity, and is desirous of getting in touch with manufacturers.

The Thomasville Light & Water Co., Thomasville, Ga., is considering extensions in its steam-operated electric power plant, and the installation of additional equipment, estimated to cost $50,000.

R. S. Graves, Chagrin Falls, Ohio, operating the Chagrin Valley Electric Co., and other power interests in this section, has acquired the plant and system of the Antietam Light & Power Co., Sharpsburg, Md., and vicinity. The new owner contemplates extensions and additional equipment installation.

The Plainville Brick Co., Plainville, Ga., is planning to purchase a steam shovel, crawler type, with ¾-yd. revolving dipper.

The May Oil Burner Corporation, Baltimore, recently organized with a capital of $500,000 and 200,000 shares of stock, no par value, will take over the assets and patents of the company of the same name with headquarters at 331 Madison Avenue, New York, also acquiring the Baltimore plant of the company. Plans are under advisement for expansion. Headquarters of the new organization will be established at Baltimore.

The State Highway Board of Georgia, East Point, Ga., is asking bids until Feb. 18 for a quantity of road machinery, including 10, 5 and 2-ton tractors, road graders, road drags, etc.

The Newport News & Hampton Railway, Gas & Electric Co., Newport News, Va., has arranged an expansion program for 1926 to cost $500,000, including the construction of an addition to the local steam-operated electric power plant, transmission line extensions and power substations.

The R. S. Armstrong & Brother Co., 676 Marietta Street, Atlanta, Ga., machinery dealer, has been making inquiries for a locomotive crane, crawler type, 40-ft. boom, gasoline driven, with 1-yd. capacity clamshell bucket.

The Tom Huston Mfg. Co., Columbus, Ga., is in the market for a universal rip saw with saw table, about 36 in. x 48 in., saw 12 in. diameter, to raise or lower, and table top to tilt 45 deg.

St. Louis

ST. LOUIS, Feb. 8.

PRELIMINARY plans are being prepared by the St. Louis-San Francisco Railway Co., Frisco Building, St. Louis, for a new group of locomotive and car repair shops in this vicinity, estimated to cost $250,000 with equipment. F. G. Jonah is chief engineer.

Fire, Feb. 1, destroyed a portion of the plant of the Southwestern Cotton Oil Co., Oklahoma City, Okla., with loss reported at $275,000, with equipment. Plans for rebuilding are under advisement.

The recent property purchase at St. Louis by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., is for the proposed expansion of its subsidiary, the George Cutter Works, South Bend, Ind., manufacturer of electric lightning standards and equipment. It is said that plans will be drawn in the near future.

Fire, Feb. 4, destroyed a portion of the plant of the International Harvester Co., Little Rock, Ark., with loss reported at $200,000 including equipment. It is planned to rebuild. Headquarters are at 608 South Michigan Avenue, Chicago.

The McCurtain Light & Power Co., Talihina, Okla., is completing plans for a new power house to cost $50,000 with equipment.

The Frank E. Headley Motor Co., 312 East Olive Street, St. Louis, has plans for a one-story automobile service, repair and garage building, 75 x 150 ft., to cost $40,000 with equipment. Machine and bench tools, spray paint machinery and other apparatus will be installed.

The A-C Brake Co., 2739 Locust Boulevard, St. Louis, manufacturer of automobile brake equipment, has plans for a one-story factory, 125 x 130 ft., to cost $30,000.

The American Salt & Coal Co., Waldheim Building, Kansas City, Mo., is completing plans for the early erection of a new salt evaporating plant at its properties at Lyons, Kan., to cost $300,000 with machinery.

The Central Power & Light Co., Chemical Building, St. Louis, has completed negotiations for the purchase of the hydroelectric power properties and system of the Compania Electrica del Chapala, Guadalajara, Mexico, for $20,000,000. The new owner is planning for enlargements in the power stations, including additional units. Extensions will also be made in the transmission lines and new substations built. W. S. McCall is president of the purchasing company.

The Board of Education, Cambridge, Neb., plans the installation of manual training equipment in its proposed two-story high and grade school, estimated to cost $100,000, for which bids will soon be asked on a general contract. Beuttler & Arnold, Grain Exchange Building, Sioux City, Iowa, are architects.

The Missouri-Arkansas Power Co., Monette, Ark., will rebuild the portion of its electric power house and ice-manufacturing plant, destroyed by fire Jan. 22, with loss reported at $30,000 including equipment.

The Perfection Equipment Co., Granite Building, St. Louis, recently incorporated with $25,000 capital stock, fully paid in, has been manufacturing water stills for more than three years. Operations are carried on in the plant of the Seibel-Suessdorf Copper & Iron Mfg. Co., St. Louis. Officers of the Perfection company include Edward F. Rorke, president and treasurer; Nellie L. Rorke, vice-president; and Estella C. Neuhaus, secretary.

The Barbour Boat & Pattern Co., manufacturer of metal hull boats, launches, life boats and rafts, Valley Park, St. Louis County, Mo., has been incorporated to succeed a partnership. No other changes have been made.

Pacific Coast

SAN FRANCISCO, Feb. 3.

CONTRACT has been let by the Electric Products Corporation, 1212 Mission Street, San Francisco, to the Austin Co. of California, for a one-story plant at Thirtieth and Myrtle Streets, Oakland, Cal., for the manufacture of electric signs and displays.

The Pacific Gas & Electric Co., 245 Market Street, San Francisco, has preliminary plans under way for a proposed hydroelectric power development in the Mokelumne Valley district, with generating plant on Tiger Creek. The station will have an initial capacity of 40,000 hp. The entire project will cost close to $3,500,000.

The Schaw Pipe & Steel Works, North B and Sixteenth Streets, Sacramento, Cal., has awarded a general contract to Ira C. Boss, 2615 K Street, for a one-story addition, 100 x 160 ft.

The Board of City Trustees, Ontario, Cal., has authorized the purchase of new pumping machinery for city well No. 1, to develop a capacity of 1000 to 1500 gal. per min. Otto S. Roen is city service manager, in charge.

The Southern California Edison Co., Los Angeles, contemplates extensions and improvements in its hydroelectric generating plants on the Tule and Kaweah Rivers, Tulare County, including the installation of additional equipment. The work will be carried out in connection with an expansion program throughout the county to cost $3,000,000.

The Los Angeles Planing Mill Co., 1800 Industrial Street, Los Angeles, is completing plans for rebuilding its plant recently destroyed by fire, with loss estimated at $150,000 including machinery. It is possible that another site may be selected. P. J. McDonald is president.

The City Council, Twin Falls, Idaho, has tentative plans under advisement for a municipal hydroelectric power house at Augre Falls on the Snake River, with initial capacity of about 12,000 hp. E. V. Berg is city engineer.

The Olympia-Calpet Refining Co., Olympia, Wash., will proceed with the construction of a new oil storage and distributing plant on Pine Street, Tacoma, Wash., one story, 120 x 175 ft., to cost $60,000.

The Prairie Power Co., Prairie City, Ore., has tentative plans for a hydroelectric power project on Strawberry Creek, a tributary of the John Day River reported to cost $200,000, including power dam and generating station.

The Union Ice Co., 354 Pine Street, San Francisco, will break ground in March for the construction of its proposed ice-manufacturing plant at Reno, Nev., to cost $80,000. A second unit will be built later, with total cost placed at $175,000.

The Atchison, Topeka & Santa Fe Railroad Co., 1001 Third Street, San Francisco, has plans for new shop buildings for locomotive repairs and reconditioning at Calwa, Cal., to cost $35,000.

The Hall-Scott Motor Car Co., Fifth and Snyder Streets, Berkeley, Cal., has awarded a general contract to the Austin Co. of California, San Francisco, for a one-story addition, to cost $50,000 with equipment.

The Pacific Coast Forging Co., Inc., Seattle, Wash., manufacturer of spikes and bolts, will enlarge its plant by the erection of four one-story buildings, 52 x 185 ft., 62 x 120 ft., 35 x 75 ft. and 35 x 62 ft. The engineering and construction contract has been placed with the Austin Co.

The Best Universal Lock Co., Seattle, will build a new plant on a four-acre site at First Avenue South and Dawson Street, and will soon ask for bids.

The Wilson Machine Works has recently started its new plant in Seattle, and will specialize in building of marine oil engines.

Canada

TORONTO, Feb. 8.

A HEALTHY demand for machine tools features this market. While the bulk of current business is for single items, practically all lines of industries are represented with the result that total sales run into considerable volume. Demand for second-hand and rebuilt tools has also strengthened. The automotive industry is again buying on a fairly steady basis and inquiries from this source are increasing. The machine tool demand from western Canada has shown considerable improvement and with the proposed new construction recently announced throughout the West, Ontario dealers and builders look for considerable business from this source. There are also more numerous inquiries on export account.

The Spruce Falls Paper Co., a Canadian organization backed by the Kimberley-Clark Co., Neenah, Wis., is having plans prepared by George F. Hardy, 305 Broadway, New York, for its proposed plant at Smoky Falls, Ont., to include a 50 mile railroad between Kapuskasing and Smoky Falls, a power plant of 50,000 hp., and a 500 ton newsprint mill.

W. C. Baldwin, 562 Maitland Street, London, Ont., will rebuild a factory recently destroyed by fire.

John Sanderson, Orillia, Ont., is making arrangements for the erection of a marble works and is interested in equipment. Construction will start in the spring.

The Fielder Paper Box Co., 170 Berkeley Street, Toronto, has awarded a general contract to R. G. Kirby, 539 Yonge Street, for an addition to cost $25,000.

The International Paper Co., has started work on the construction of a $6,000,000 power development plant at Chelsea, Que., and the construction of a newsprint mill at East Templeton, Que.

The superintendent of waterworks, East York Township, Ont., will prepare plans in connection with the installation of additional equipment in the local plant.

The town of Forest Hill, Ont., is completing arrangements in connection with the installation of a sewage disposal plant and equipment to cost $145,000.

The Amulet Mining Co., Rouyn, Que., is considering the erection of two mining plants on its property.

I. H. Weldon, president Provincial Paper Mills, Port Arthur, Ont., states that if conditions warrant the company will add another 100-ton paper mill to its plant. The buildings are already up and it is only necessary to install machinery and equipment.

The Montreal Island Power Co., Montreal, proposes to start work soon in connection with a power development plant at Riviere Des Prairies, Que., where between 50,000 and 60,000 hp., will be developed. It will take about two years to complete the power house and dam.

Western Canada

R. M. Stewart, president Dunwell Mines Co., Stewart, B. C., states that construction on a new mill will start about April 1.

The engine room of the Vancouver Lumber Co., Vancouver, B. C., was recently destroyed by fire with loss of $5,000. It will be rebuilt.

Foreign

THE National Railways of Mexico, Mexico City, Mexico, have preliminary plans for the electrification of a number of divisions of the system. The initial installation is projected from Saltillo to Monterrey, about 75 miles. Improvements and extensions will also be made in shops, rolling stock and other operating facilities.

Wolf, Netter & Jacobi, 52 Kurfurstendamm, Berlin 15, Germany, operating a rolling mill, are desirous of getting in touch with American manufacturers of leveling machines for sheet steel, with view to immediate purchases.

The Ministry of Public Works, Prague, Czechoslovakia, has authorized the construction of a power dam and hydroelectric power plant at Uzhorod, in connection with a 1926 State expansion and improvement program. Hydroelectric power stations will also be completed at Kolin, Nymburk, Prelouc and Mirejovice, and a reservoir constructed on the Elbe River, near Verdek. A fund of about $750,000 has been approved. The American Consulate, Prague, Charles S. Winans, consul, has information regarding the projects.

The American Consulate, Tunis, Tunisia, is desirous of receiving catalogs and information from American manufacturers of electrically operated soda fountain equipment, including coffee urns, cup-washing machines, etc., to handle local inquiries.

The American Chamber of Commerce in France, 32 Rue Taitbout, Paris, has received an inquiry from a local company desirous of getting in contact with American manufacturers of circular saws for lumber service.

The Swedish Chamber of Commerce of the United States, 2 Broadway, New York, has received an inquiry (Reference 307), from a company in Sweden in the market for pressed steel tanks for oxygen and other gases.

Pressed Steel Car Co. to Change Capital Structure

Stockholders of the Pressed Steel Car Co., Pittsburgh, will be asked to vote at a special meeting to be held at Jersey City, Feb. 17, on a proposal to absorb a subsidiary company, the Western Steel Car & Foundry Co., Chicago, and an adjustment of the company's capital structure, not only to provide for the taking in of the subsidiary, but to make possible the retirement of the preferred stock and the conversion of $6,000,000 5 per cent bonds.

The company now is capitalized at $25,000,000 of equal amounts of common and non-cumulative preferred stock. The Western Steel Car & Foundry Co. is capitalized at $1,250,000. It is proposed to increase the capital to $62,500,000 to consist of $16,200,000 of 7 per cent cumulative preferred stock and $46,300,000 of common stock. Holders of existing preferred stock are to receive for each share a share of the new cumulative preferred stock or a share of new common stock and one-fifth of new preferred stock. Common stockholders are to receive a share of new common stock and one-fifth share of new preferred stock for each share of old common stock. Bonds are convertible on the same basis as common stock. The new preferred stock is to be callable at $110 a share or is convertible into new common stock share for share. If the plan is approved the company will have a capitalization just double that at present, counting the outstanding bonds as capital.

Trumbull Steel Co.

The Trumbull Steel Co., Warren, Ohio, reports net earnings during 1925 of $1,575,570, after all charges except Federal taxes. Net was equal, after preferred dividends, to $1.53 per share on the 574,108 shares of common stock. This compares with $2,243,888 or $2.46 a share on the 627,688 shares in 1924. Total assets are given as $48,825,559, current assets $9,105,487, and current liabilities $2,203,792.

Through a settlement of a stockholder's suit in the Common Pleas Court Feb. 1, directors of the Trumbull Steel Co., Warren, Ohio, who served under Jonathan Warner, president, have agreed to pay $425,000 into the Trumbull treasury and in return for this settlement the Trumbull company will reassign to the directors that amount in dividend warrants of the Trumbull-Cliffs Furnace Co., which is owned jointly by the Trumbull Steel and the Cleveland-Cliffs Iron companies.

The Black & Decker Mfg. Co., Towson, Md., offered 8 per cent accumulative preferred stock in the amount of $428,200 to stockholders, employees and their friends. The issue was over-subscribed by more than $100,000.

Industrial Finance

The Newton Steel Co., Youngstown, Ohio, reports net earnings for 1925, after charges, of $786,230, equivalent after preferred dividends to $7.04 per share on outstanding common stock. Its net profit on common stock in 1924 was $3.57 per share. Surplus for the year was $454,571, being reduced by a write-off against deferred charges to $422,262, bringing the aggregate surplus to $1,516,936. The balance sheet shows a net equity for preferred stock of $400 per share and of $34 for common stock. Net sales in 1925 were $9,712,627, compared with $6,321,207 in 1924.

The North American Car Co., 327 South LaSalle Street, Chicago, has disposed of its assets to the North American Car Corporation, the management to be practically unchanged. The balance sheet of the North American Car Co. as of Oct. 31, 1925, shows cash of $145,674 and negotiable securities of $142,169. These were considerably below the total of Dec. 31, 1924, a marked expansion in inventories accounting for the shrinkage. The property, plant and equipment account shows the largest change, with the addition of cars and a New Orleans oil terminal bringing the total to $3,527,665, as against $2,712,639 at the end of 1924. Total assets are increased correspondingly.

The Acme Steel Goods Co., 112 West Adams Street, Chicago, reports a balance sheet as of Dec. 31 showing a surplus of $1,567,774, against $3,914,186 at the end of 1924. Cash on hand was $209,003. Current assets were $3,032,244, against $2,647,359, and current liabilities were $820,801, against $374,692.

The Virginia Iron, Coal & Coke Co., Roanoke, Va., has issued its statement of operations for the fourth quarter and for the year ended Dec. 31, 1925. Fourth-quarter gross operating revenue was $1,009,714 less operating expenses of $933,236, leaving net operating income of $76,478. Revenue from other sources, $23,689, brought total net revenue to $100,167. Bond interest, etc., deducted, $90,415, left net earnings for the fourth quarter at $9,752. Net earnings for nine months ended Sept. 30 were $209,039, making net earnings for the year of $218,791. The gross was $865,709 and the net $61,997 in the September quarter. Based upon the quarterly statements, gross earnings for 1925 aggregated $3,386,308, against $3,602,442 in 1924. Net profit, subject to inventory adjustment, amounted to $218,791 last year, against a loss of $53,503 in 1924. The net profit for 1925, after allowing for preferred dividend requirements, equaled 93c. a common share.

The Allis-Chalmers Mfg. Co., Milwaukee, during the first eleven months of 1925 added approximately $1,000,000 to surplus, after payment of $2,025,789 preferred and common dividends. The surplus on Nov. 30 stood at $14,511,326. Net earnings of the company for eleven months ended Nov. 30 were $2,994,129. Deducting preferred dividends, the balance remaining for common stock was approximately $1,936,000, equal to about $7.50 a share on the 260,000 shares outstanding.

Changing the end of its fiscal year from Aug. 31 to Dec. 31 has resulted in a 4-months' earnings statement of the Crucible Steel Co. of America, covering the last four months of 1925. Operating profits are placed at $3,429,926, net profits at $2,070,247 and balance for surplus, after deducting $1,362,486 for dividends, at $707,761. The consolidated balance sheet shows assets and liabilities amounting to $116,961,772, of which $22,789,577 is unappropriated surplus. Current assets are $34,779,855. Unfilled orders on the books Dec. 31 were for 153,025 tons, a gain of 8864 tons from the 144,161 tons of Aug. 31.

Current Metal Prices

On Small Lots, Delivered from Stocks, New York

THESE prices are given for the convenience of small-lot buyers whose requirements do not run into mill-size orders.

Only base prices can be listed in some cases, due to limits of space; other items of a given group are deducible from the base price.

The prices which are quoted below are those at which small lots may be bought, whether from jobbers' or other stocks.

Complete market reports and prices on large shipments from mills will be found elsewhere under "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates

	Per Lb.
Bars:	
Refined iron bars, base price	3.24c.
Swedish charcoal iron bars, base	7.00c. to 7.25c.
Soft steel bars, base price	3.24c.
Hoops, base price	4.49c.
Bands, base price	3.99c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base	3.34c.
Channels, angles and tees under 3 in. x ¼ in. base	3.24c.
Steel plates, ¼ in. and heavier	3.34c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger	3.30c.
(Smooth finish, 1 to 2½ x ¼ in. and larger)	3.65c.
Toe-calk, ½ x ⅝ in. and larger	4.20c.
Cold-rolled strip, soft and quarter hard	6.25c.
Open-hearth spring steel	4.50c. to 7.00c.
Shafting and Screw Stock:	
Rounds and hex.	4.00c. to 5.00c.
Squares and flats	4.50c. to 5.50c.
Standard tool steel, base price	12.00c.
Extra tool steel	15.00c. to 18.00c.
Special tool steel	20.00c. to 23.00c.
High-speed steel, 18 per cent tungsten	70c.

Sheets

Blue Annealed

	Per Lb.
No. 10	3.89c.
No. 12	3.94c.
No. 14	3.99c.
No. 16	4.09c.

Box Annealed—Black

	Soft Steel C. R. One Pass Per Lb.	Long Terne Sheets Per Lb.
Nos. 18 to 20	4.15c. to 4.30c.	5.75c.
Nos. 22 and 24	4.20c. to 4.35c.	5.90c.
No. 26	4.25c. to 4.40c.	6.05c.
No. 28*	4.35c. to 4.50c.	6.35c.
No. 30	4.55c. to 4.70c.	6.85c.

Galvanized

	Per Lb.
No. 14	4.45c. to 4.60c.
No. 16	4.60c. to 4.75c.
Nos. 18 and 20	4.75c. to 4.90c.
Nos. 22 and 24	4.90c. to 5.05c.
No. 26	5.05c. to 5.20c.
No. 28*	5.35c. to 5.50c.
No. 30	5.85c. to 6.00c.

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe

Standard Steel	Black	Galv.	*Wrought Iron*	Black	Galv.
½ in. Butt	46	29	½ in. Butt	4	+19
¾ in. Butt	51	37	¾ in. Butt	11	+ 9
1-3 in. Butt	53	39	1-1½ in. Butt	14	+ 6
2½-6 in. Lap	48	35	2-in. Lap	5	+14
7 & 8 in. Lap	44	17	3-6 in. Lap	11	+ 6
11 & 12 in. Lap	37	12	7-12 in. Lap	3	+16

Bolts and Screws

Machine bolts, cut thread, 40 and 10 per cent off list
Carriage bolts, cut thread, 30 and 10 per cent off list
Coach screws, 40 and 10 per cent off list
Wood screws, flat head iron,
80, 20, 10 and 10 per cent off list

Steel Wire

Base Price† on No. 9 Gage and Coarser	Per Lb.
Bright, basic	4.25c.
Annealed, soft	4.50c.
Galvanized, annealed	5.15c.
Coppered, basic	5.15c.
Tinned, soft Bessemer	6.15c.

†Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	19⅛c. to 20⅛c.
High brass wire	19⅝c. to 20⅝c.
Brass rods	16⅞c. to 17⅞c.
Brass tube, brazed	27⅛c. to 28⅛c.
Brass tube, seamless	23¾c. to 24¾c.
Copper tube, seamless	24¼c. to 25¼c.

Copper Sheets

Sheet copper, hot rolled, 22¾c. to 23¾c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Bright Tin		Coke—14x20		
	Grade "AAA"	Grade "A"		Prime	Seconds
	Charcoal 14x20	Charcoal 14x20	80 lb.	$6.15	$5.90
			90 lb.	6.30	6.05
			100 lb.	6.45	6.20
IC	$11.25	$8.85	IC	6.65	6.40
IX	12.85	10.85	IX	7.85	7.60
IXX	14.40	12.55	IXX	9.00	8.75
IXXX	15.75	13.85	IXXX	10.35	10.10
IXXXX	17.00	15.05	IXXXX	11.35	11.10

Terne Plates

14 x 20

IC—8-lb. coating	$7.75 to $8.00
IC—20-lb. coating	10.00 to 11.00
IC—30-lb. coating	12.00 to 13.00
IC—40-lb. coating	13.75 to 14.25
Fire-door stock	10.50

Tin

Straits, pig	63½c. to 64c.
Bar	67½c. to 68c.

Copper

Lake ingot	15½c.
Electrolytic	15¼c.
Casting	15 c.

Spelter and Sheet Zinc

Western spelter	9c. to 9¼c.
Sheet zinc, No. 9 base, casks	13¼c.; open, 13¾c.

Lead and Solder*

American pig lead	10¼c. to 11¼c.
Bar lead	12¼c. to 13¼c.
Solder, ½ and ½ guaranteed	41 c.
No. 1 solder	40 c.
Refined solder	33¾c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb	68c. to 72c.
Commercial grade, per lb	30c. to 35c.

Antimony

Asiatic	24½c. to 26½c.

Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), ingots for remelting, per lb. 30c. to 30½c.

Old Metals

The market has been stirred in sympathy with new copper, and total transactions for the week have been good. Dealers' buying prices are as follows:

	Cents Per Lb.
Copper, heavy crucible	12.00
Copper, heavy wire	11.75
Copper, light bottoms	9.50
Brass, heavy	7.25
Brass, light	6.25
Heavy machine composition	8.75
No. 1 yellow brass turnings	8.50
No. 1 red brass or composition turnings	8.00
Lead, heavy	8.00
Lead, tea	6.00
Zinc	5.25
Cast aluminum	19.00
Sheet aluminum	19.00